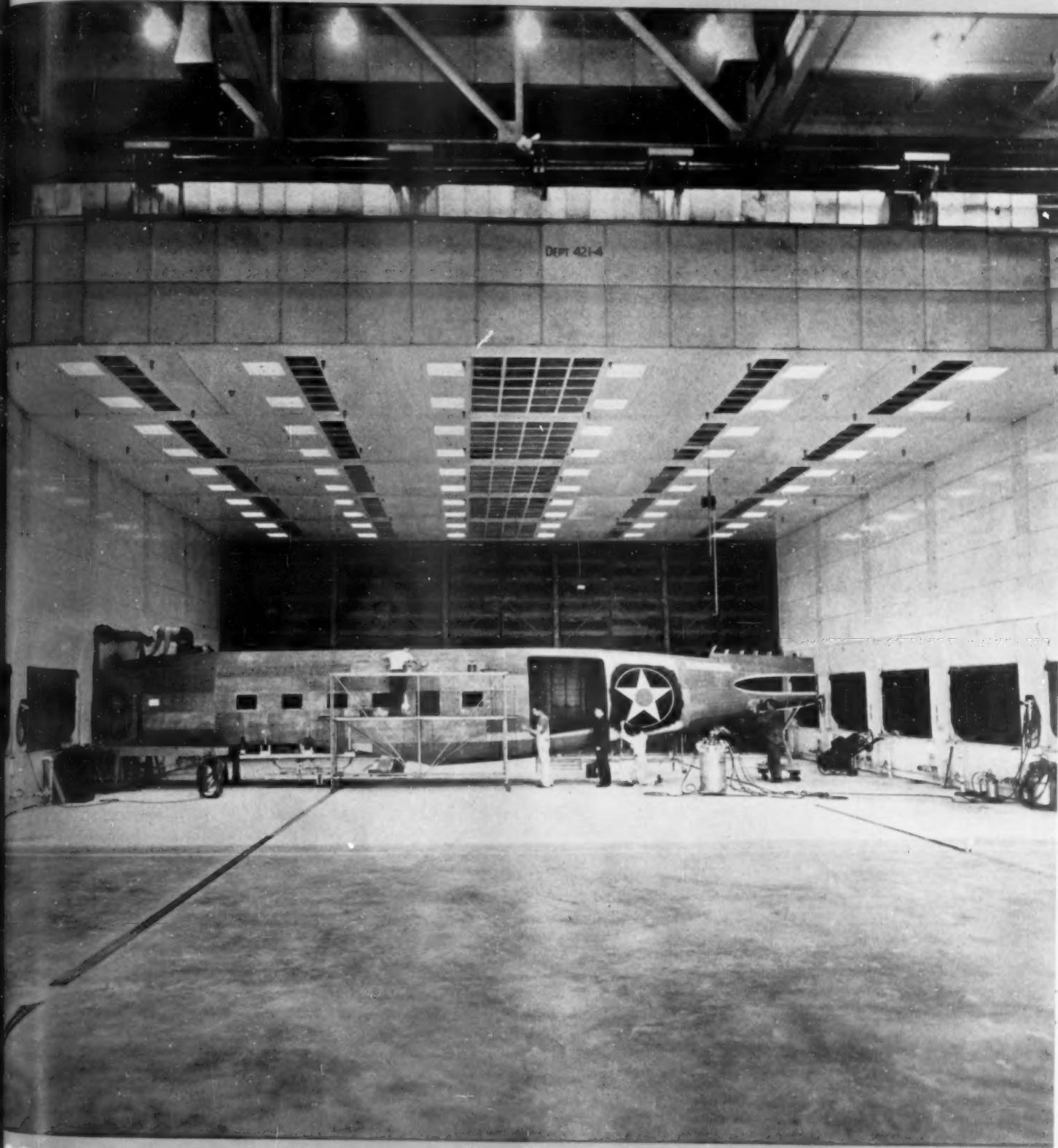


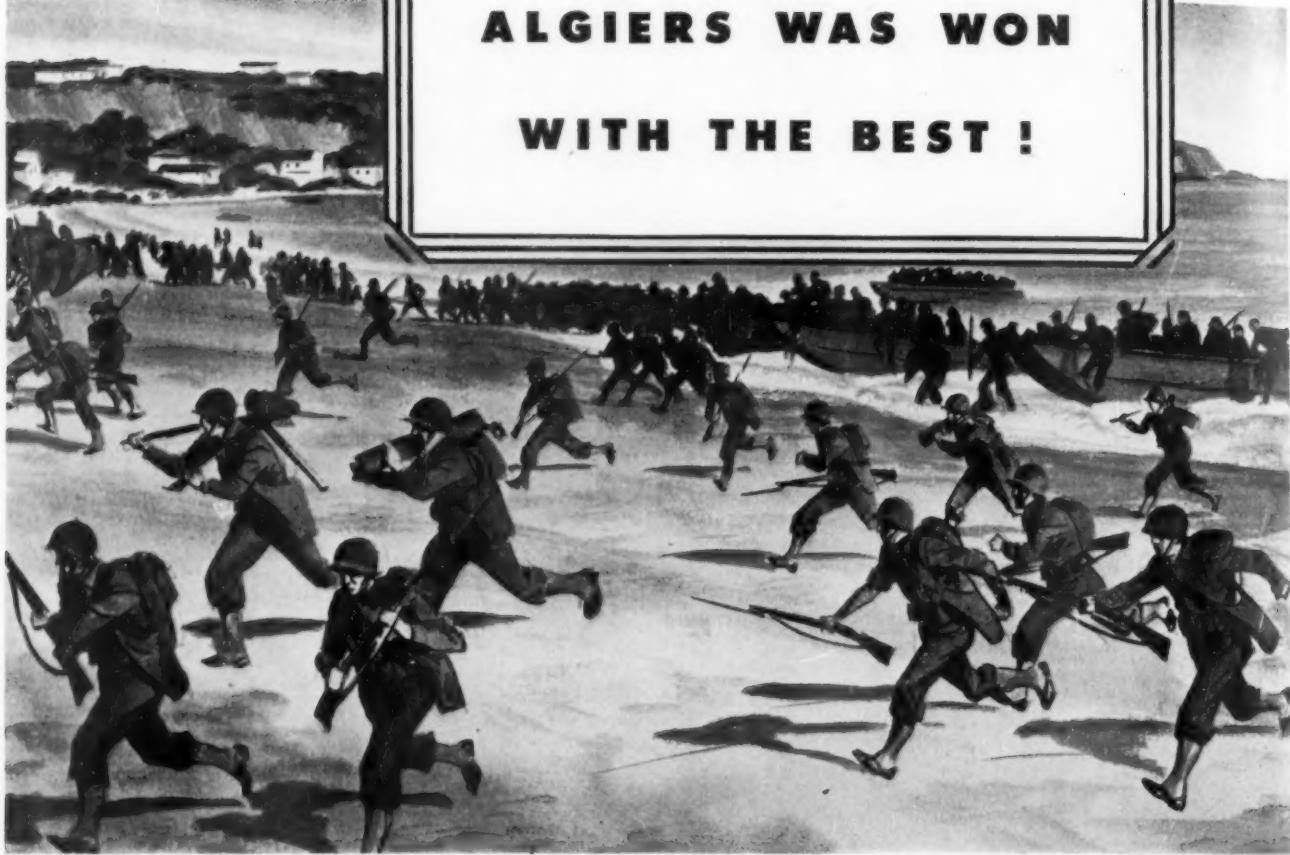
DECEMBER, 1942

ORGANIC FINISHING

SECTION OF METAL FINISHING



QUERING • ENAMELING • JAPANNING • PAINTING



**ALGIERS WAS WON
WITH THE BEST !**

Ultra modern, tremendously effective equipment was in the hands of our fighting forces when they swept through the North African surf. For in this war, our men are not sent into battle until their weapons are as good as or superior to those of their enemies. And that goes for *finishes*, too.

For—all that fire-breathing power would be useless if rust and corrosion were allowed to attack it. *Finishes*, therefore, must be right.

In making sure that shells *fire* in a critical moment, in protecting surfaces against hidden enemies, moisture, salt water, heat, cold, abuse anywhere on earth, finishes cannot fail.

That is why Zapon finishes for implements of war—and we're working night and day producing them—must meet or exceed government specifications. They do.



ZAPON DIVISION • ATLAS POWDER COMPANY

Eastern Sales: Stamford, Conn.

Western Sales: North Chicago, Ill.

INDUSTRIAL FINISHES

Section of

METAL FINISHING

Founded January, 1903
as Metal Industry

Publication Office
11 West 42nd St., New York

ORGANIC FINISHING

SECTION OF METAL FINISHING

DECEMBER, 1942

CONTENTS

Finishing Warplanes — By Frank V. Faulhaber 681

Finishing of Filters — By Carleton Cleveland 687

DEPARTMENTS

News From Washington 680

Patents 690

New Equipments 691

Shop Problems 692

Photograph on Cover

The picture on the cover was taken at an aircraft plant in Santa Monica, Calif. It shows an installation of the Binks Manufacturing Co., of Chicago, Ill.

Short Order Finishing

One of the very important problems of today in many finishing departments is the wide variety of finishing materials and systems which must be handled. Short order finishing, it has been termed. Contracts call for specification finishes unfamiliar to the finishing department. Deadlines must be met. To make contract dates, finishing operations must begin almost immediately at full production speed. When a job is finished there is a good chance that the particular finish will not be used again for some time, if ever again.

There is no question that finishing under such conditions can be very difficult. Many things can go wrong. However, much trouble may be forestalled if the finishing material manufacturer's recommendations are closely followed and if all finishing equipment is in good operating order.

Following the recommendations of the manufacturer of the finishing material is extremely important. The proper thinner should be used in the correct proportions. If an air-drying period previous to baking is suggested, follow the suggestion exactly. Baking temperatures should be as directed. It must be remembered that the manufacturer formulated the finishing material and probably has followed it in production in a number of other plants. In the event that trouble with the material does develop, make certain to call him immediately for his advice.

As regards equipment, everything connected with the finishing operations should be in the best possible operating condition. Spray booths, mixing room, the whole finishing department should be clean and orderly. Exhaust fans, ovens, spray guns, compressed air cleaners, etc., should be in perfect working order.

The halcyon days of finishing, when time was not so great a factor and long careful preparation for a job was possible, are gone for a time. Time is now of greatest importance and good results must be obtained quickly. The finishing material manufacturer's instructions carefully followed will produce those good results. Carefully maintained equipment will produce them with the least loss of time.

L. H. LANGDON, Publisher • T. A. TRUMBOUR, Business Manager

THIS IS WASHINGTON—

By George W. Grupp

METAL FINISHING's Washington Correspondent

McCord's New Appointment

About the first of November, 1942, W. W. McCord was made Chief of the Electroplating and Anodizing Section of the Welding and Electroplating Equipment Branch of the WPB's General Industrial Equipment Division.

Electroplating Generating Equipment Wanted

If anyone knows the whereabouts of available used generating equipment, he is urged to communicate with W. W. McCord, Chief, Electroplating and Anodizing Section, Welding and Electroplating Equipment Branch of the WPB, Room 1535, Temporary Building S, Independence Avenue and Seventh Street, Washington, D. C.

AAA Rating May Be Extended

A customer's purchase order with an AAA rating may be extended by firms operating under the Production Requirements Plan provided (1) it is necessary to obtain material the PRP unit will deliver, and (2) it is necessary to obtain the quantities of materials to fill AAA orders. The November 2, 1942 Amendment No. 1 to Priorities Regulation No. 11 as amended October 3, 1942, does not permit such extension for purposes of replacing inventory.

Alcohol Production Increased

Louisiana producers of molasses were forbidden on November 2, 1942 by Amendment No. 4 to General Preference Order M-54 as amended March 27, 1942, to produce, sell or deliver molasses to any person unless he receives a certificate from that person stating that the molasses "will not be used or resold for the manufacture of mixed feed (including custom grinding), for the manufacture of vinegar or for ensilage or direct feed." The purpose of this amendment is to channel about 8,000,000 gallons of Louisiana produced molasses to plants which produce the much needed war alcohol.

Butyl Alcohol Order Amended

Butyl Alcohol General Preference Order M-159 as amended November 16, 1942, provides that the standard chemical allocation Forms PD-600 and PD-601 must now be used.

Phenol Order Extended

General Preference Order N-27, as amended November 3, 1942, has extended the allocation control of phenol to include tar acid oil (any coal tar distillate containing five per cent or more of phenols), carbolates (any aqueous solution of an alkali metal salt containing 10 per cent or more of phenols), phenols (including cresols and xylenols), their homologues and mixtures, para-phenyl-phenol, ortho-phenyl-phenol, butyl phenol, and amył phenol. Since December 1, 1942, no one is permitted to sell, deliver, accept or use any of these commodities until they have specific authorization to do so by the WPB.

Methyl Ethyl Ketone Order Amended

Methyl Ethyl Ketone General Preference Order M-169, as amended November 16, 1942, provides that the standard chemical allocation Forms PD-600 and PD-601 must now be used.

Enamelled Ware Production Restricted

Ernest Kanzler, Director General for Operations, on October 24, 1942, issued Supplementary General Limitation Order L-30-b which provides that no manufacturer is permitted to process, fabricate, work on or assemble any enamel ware except of the kind and size listed in table "A". This order reduces the peace-time total of 450 kitchen enamelled ware to the wartime limit of 25; and it restricts the amount of available iron and steel for the production all types of commercial, household and institutional enamel ware to 75 per cent of the base year ending June 30, 1941. These restrictions do not apply to manufacturers working on war contracts for the Army, Navy, Maritime Commission and Shipping Administration.

Medical Equipment and Supplies Simplification General Limitation Order L-214, dated October 24, 1942, provides that after October 29, 1942, no manufacturer is permitted to process, fabricate, work or assemble any hospital enamel ware except specified sizes and kinds of basins, bedpans, irrigators, instrument sterilizers, and trays as listed in the schedule. All unlisted articles must now be made of glass, plastic, or wood.

Mineral Oil Polymers Controlled

Mineral oil polymers were placed under allocation by General Preference Order 258, dated November 17, 1942, because of the increasing demand for military purposes.

Para-Phenyl-phenol Resins Restricted

Para-Phenyl-phenol Resins, Bakelite Corporation's BR-254, BK-3962X, and BR-17,000, and Reichold Chemical Company's Super-Beckacite 3000, were placed under complete allocation and control by General Preference Order 254 dated October 26, 1942. All those who on October 31, 1942 had 100 or more pounds of these materials in their possession had to file with the WPB Chemicals Branch a special inventory report on Form PD-600 by November 12, 1942.

Phenolic Resins Under Control

Phenolic resins and Phenolic resin moulding compounds were placed under complete allocation control on December 1, 1942 by General Preference Order M-246 because of the great need for these commodities to make parts for ships, planes, tanks, telephones, and power plants. Therefore persons who seek phenolic resins and compounds for protective coatings must file certificates with their suppliers specifying the end-use in considerable detail.

Shellac Prices

On November 14, 1942, the Defense Supplies Corporation announced that it would buy stocks of shellac in the United States f.o.b. at prices 10 per cent below the specified prices for different grades established in Maximum Price Regulation No. 245, dated October 21, 1942. The restrictions of WPB Conservation Order M-106 do not apply in making an offer to the DSC's Associated Representatives located at 155 John Street, New York City.

Finishing Warplanes

By FRANK V. FAULHABER

WITH labor at a premium and speed essential as never before, aircraft manufacturers are naturally striving for topmost production and resort to every expediency. This is true of the Glenn L. Martin Company of Baltimore, Md., which recently started its huge flying boat "Mars" on its initial test flight. This new air dreadnaught, incidentally, weighs 70 tons, has a range of nearly 8000 miles, is designed to carry 18 tons, and is one of the world's two largest planes—the other being the Douglas B-19. The Martin Company employs 1900 people in its engineering department alone in 29 types of engineering jobs.

To conserve man-power in the finishing department, this gigantic aircraft organization has installed a robot painter that sprays automatically. Operated by five men, this device accomplishes in a third of the time the work that formerly required fifteen men to do. Thus, ten men needed for other work are released from hand-operated spray guns.

This robot painter, or transverse automatic spray coating machine, has interesting possibilities. It will automatically coat a wide range of articles, including such peace-time products as hides, imitation leathers, wall coverings, wall boards, floor coverings, black boards, paper, fabrics, shingles, laminated glass, tiles and other flat pieces. The machine serves most effectively when the object to be sprayed exceeds nine feet in height and is not over twelve feet in width.

This modern finishing unit is designed for spraying flat surfaces in sheet, roll or panel form. The work to be sprayed is carried through the spray machine by means of a conveyor. Fabric in rolls can be drawn through by means of transferring this material from one roll to another. The machine consists of a carriage mounted on two slide rods, which are fixed at right angles over the material to be sprayed. The carriage is equip-

The author continues the subject of finishing defense products with a description of finishing operations at the Glenn L. Martin Company of Baltimore. In this first installment a description of automatic spraying is given and various types of spray booths are discussed. Future installments will cover metal treatment, baking and conveyor systems.—Ed.

ped with headers which feed fluid and air to the guns by means of short lengths of hose. The guns are automatically opened and closed at each end of the stroke by means of an automatic air valve mounted on the carriage.

A special reversing motor is used to drive the carriage back and forth. The motor is automatically reversed at each end of the stroke by two limit switches. These switches are tripped by the cam on the carriage, and can be adjusted for different widths of material. All

necessary exhaust equipment, condensers, regulators, gauges, air and fluid hoses, valves, and exhaust fans are provided.

With this machine, a production range of from twenty-five to thirty-five feet per minute is possible, depending on such factors as quality of finish, weight of coat, kind of material, width of work and setting of guns. The maximum coverage of the machine, with two auxiliary guns, under average conditions, is approximately 240 square feet per minute.

The output of this robot painter is dependent on the motor reversals per minute, and the amount of material that the guns can dispense. For continuous operation, a maximum of approximately 60 reversals per minute can be obtained, thereby giving approximately 60 strokes per minute across the work.



Small parts, slated to play a vital role in the construction of Martin bombers, are first given a primary coat of protective paint. Here they are seen starting on their way through the robot sprayer that has brought a tremendous saving in manpower and time.

As made for the Martin Company by the DeVilbiss Company of Toledo, Ohio, numerous refinements and improvements have been added to adapt the machine to Martin aircraft work. One such refinement is the stack and ventilator arrangement which keeps fine particles of paint from being drawn out through the stack into the air over the roof of the building. In the past, fine paint "dust" presented a fire hazard. Today, the excess paint spray is filtered through a "waterfall" and is collected in a big tank under the paint racks, to be skimmed off with ladles.

Water Wash Booths

It is interesting to note the efficient arrangement of these modern water wash spray booths. For instance, the nozzle type was designed to gather and wash the paint-laden air and the overspray from the spray guns and deposit the residue in a tank especially provided for this system. This method eliminates the possibility of any spray residue passing out through the exhaust piping and being deposited on nearby buildings. The nozzle type unit consists of a spray booth with a water-tight wash chamber made up of panels bolted or welded together. This chamber has a series of spray nozzles so arranged and directed that the air exhausted from the booth must pass through its spray.

Between the nozzles and the exhaust fan or blower is a set of eliminators. These remove the heavier particles of water, returning them to the reservoir tank underneath the water chamber. The exhausted air is in a high state of humidification and contains solvents in a gaseous form. Consequently, it should be exhausted outside the building through exhaust piping, as is the standard practice.

The resistance caused by the spray nozzles, the construction of the water chamber and the use of eliminators, require somewhat larger exhaust fans than are usually recommended, for use with a standard direct type exhaust booth of the same size.

Water is supplied to the spray nozzles by a direct, connected motor-driven pump at a pressure of from 30 to 35 pounds at the pump. The inside of the wash chamber is completely filled with a heavy spray from the nozzles, providing a complete wash of all metal in the chamber. Due to the loss of pressure by reason of the

number of spray nozzles, the pressure at the nozzles is somewhat less than at the pump, but never sufficiently so to impair the efficiency of the system.

The Eliminators

Constructed in packs, the eliminators are placed in the water wash chamber so that they are easily accessible through a door at the end of the chamber. However, there may be instances where the door may have to be located at some other point. The packs are so designed that they can be readily disassembled, cleaned and reassembled.

Welded into the reservoir tank is a threaded coupling so that the city water line can be connected for quick filling and for washing down the tank. A float valve is supplied with each chamber, with the bracket properly located to maintain the correct level. The float valve rod may have to be bent slightly to compensate for any adjustments which may be necessary in order to get the desired water level. The connection to the float valve is made by a small pipe leading from the main water supply line to it.

The water in the reservoir tank should be treated with a water wash compound. The supply piping from the pump, which includes pipe, spray nozzles and all necessary fittings, is usually of black iron. The city water supply piping, overflow and outlet drain piping and valves are usually not a part of the equipment.

When installing a nozzle type water wash booth, an outline of the booth and water chamber should be drawn at a point on the floor where it is to be located, checking ceiling height for ample clearance. After determining location of wall or ceiling outlets for the exhaust stack, check for any obstructions that may be above the booth to eliminate difficulties in the installation of exhaust piping, exhaust fans, etc. Check outside the building for any obstructions that might be in the way of the exhaust piping. Determine whether the floor beneath the installation is strong enough to support the weight of the equipment, taking into account the weight of the booth, plus the weight of the filled water tank.

The Water Tank

The water tank should be placed in position, locating it according to the outline previously drawn and setting it up so that it is reasonably level.

Usually sufficient water-proof cement is supplied with each booth to caulk all joints where necessary. The entire top surface of the angle around the top of the water tank should be covered with cement and troweled out to a minimum thickness of 1/8 inch.

The wet section of the water chamber is placed on the tank and bolted to it. The dry section is then placed on top and bolted in place.

The water pump should be fastened to the outlet connection on the water tank, and then affixed to the inlet connection in the water chamber. Incidentally, plants that at the outset may have encountered difficulty with this type of equipment, may have neglected to clean the piping thoroughly before assembling the nozzles. When attaching the pump it is vital that connections are made so that no strain is exerted on the pump in any way. In other words, the pump must be set so that the piping can be connected freely and without undue strain. Any strain on the pump assembly may create a bind on the shaft, resulting in excessive friction and possible overload on the motor.

After the spray booth panels are assembled, the eliminator packs can be placed in position. These packs can be installed in one way only. Whenever interference is found, the packs should be reversed or turned over, or both, and then inserted. When they are in proper position, they slide into place freely. The exhaust fan, adapters, exhaust ducts, weather caps, guy wires, etc., can then be installed.

Water Supply

Water is supplied to the tank by a large main supply line and a small auxiliary supply line which operates automatically, and is controlled at all times by the automatic float valve. A valve placed in the main supply line permits the supply to be turned on or off. During normal operations this valve remains closed, the refilling being done by the auxiliary supply line.

The water tank should be filled by means of the main supply line valve. Then the pump is started and allowed to operate for fifteen or twenty minutes to thoroughly wash out the pipe line. The tank should then be drained and the interior carefully washed out to remove any scale or foreign substances that might have been washed loose.

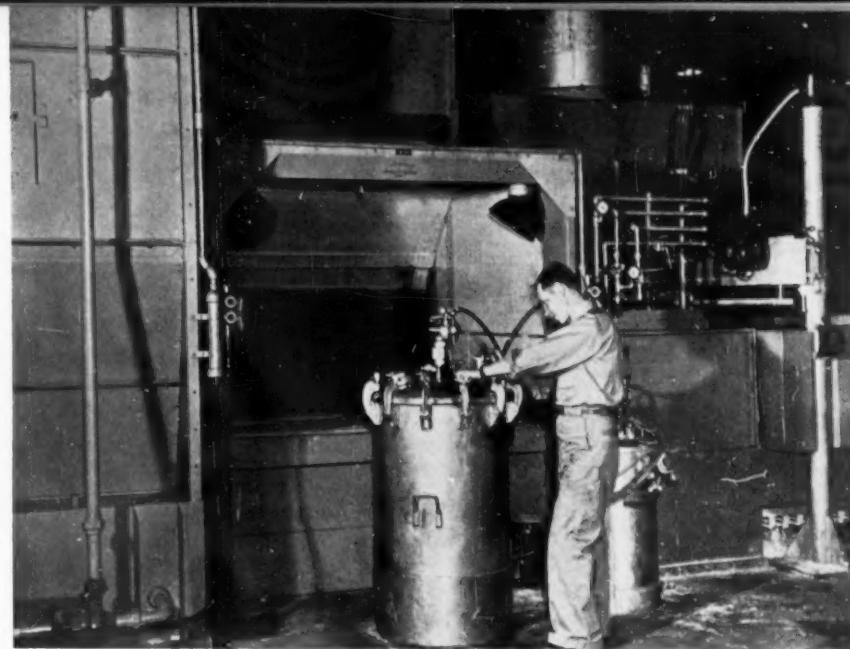
The nozzles can then be inserted in place and the water pump tested. The pump should perform without any effort and operate quietly. The exhaust fan should be checked, to see that it is rotating in the correct direction. Then the water tank is filled by opening the main supply line valve until the water reaches an 18 inch level. The water should be compounded according to the instruction plate fastened to the water chamber. Additional instructions usually are supplied on water wash compound containers. Some finishing materials may require more compound than the amount recommended on the instruction plate, in some instances as much as fifty to 100 per cent.

Reducing Cleaning

Finishing operators can reduce cleaning of this equipment to a minimum by noting the action of the water wash compound on the material being sprayed and by keeping the water compounded to the proper strength by regular additions. The residue that collects on the surface of the water should be skimmed two or three times daily and especially when spraying is finished for the day.

It is advisable, after a brief period of operation, to check the condition of the inside of the water wash chamber and tank. The presence of an undue amount of pigment or paint residue indicates the necessity of cleaning. To clean the water wash chamber and tank, the water should be drained from the tank, removing the residue from the side walls and cleaning the interior of the tank. It should not be the policy of the plant to wash this residue down the sewer, as it is liable to clog the sewer pipe.

It is important that the eliminator packs be inspected periodically, and cleaned whenever necessary. This can be done by removing them through the eliminator door at the end of the chamber, after which the packs can be easily disassembled if necessary. The fan and exhaust piping should be inspected at the same time and cleaned if they require it. The frequency of the cleaning operations will depend upon the care exercised in keeping the water properly compounded, the conditions under which the booth is operated, and, in some instances, the material being sprayed.



Fine paint spray and fumes are sucked up through the ventilator stack, screened by a "waterfall" which serves as a filter, removing the highly inflammable paint "dust" from the air. In the foreground is one of the pressure vats where the paint, constantly agitated, is kept.

To ascertain if they are working satisfactorily, frequent inspection of the nozzles should be made. It is essential that all the nozzles be in operation at all times. An inactive nozzle will allow over-spray to pass on to the eliminator packs, thence to fan and exhaust piping, causing them to gather pigment that should be gathered in the water chamber. To clean the nozzle, the nozzle cap and nozzle spiral should be removed. The cap and the nozzle spiral should then be cleaned. With these parts removed, the pump should be run to clean out the pipe and nozzle body. Then the cap and spiral can be replaced in position. The fan and motor should be lubricated at least twice a year. The fan and the exhaust piping should be thoroughly cleaned at regular intervals.

Centrifugal Wash

Occasionally a plant that has previously encountered but little trouble with one type of water wash exhaust system, will meet with a host of difficulties when installing a different type. The reason is that each type presents different possibilities, different problems, different requirements. Thus, finishing plant managements will be all the more interested in another spray booth arrangement: namely, the centrifugal type water wash exhaust system. The centrifugal type of water wash spray booth was designed to serve the same purpose as the conventional nozzle type unit, which employs

a water pump with water nozzles, etc.; that is, to wash the air and to prevent pigment from reaching the exhaust stack and going outside of the building.

The principal thought, in designing this unit, was to eliminate the water pump and motor, piping, nozzles, etc., and to reduce the size of the water wash chamber. In reducing the size of the water wash chamber, there was accomplished a reduction of the sheet metal area exposed to the paint which passes through this chamber, thereby simplifying the cleaning of the interior. Due consideration was accorded the problem of the user; that is, the removal of the accumulated residue inside of this chamber. In many cases this is particularly difficult, since access to the chamber can be made only through the front opening of the booth, which naturally means cessation of operation.

An important feature of the centrifugal water wash booth is that the residue is carried away from the washing area and deposited on the surface of the water in the tank extension, permitting skimming at all times without interfering with production. The only prerequisite is that the water be compounded to the proper strength and kept at this strength by regular additions of compound. In this connection, it is recommended that compound be added twice daily. This does not entail additional expense, since the ordinary daily portion can be divided in half.

A Distinction

In considering the conventional type of water wash spray booth, it must be borne in mind that, while the residue is gathered as a floating mass on top of the water in the tank, there is a tendency toward precipitation of the heavier particles due to the water moving at a high rate of speed. With the centrifugal type water wash booth this is considerably reduced. In the conventional type of unit this precipitation eventually moves toward the pump suction and will build up in both the pump and the nozzles, finally necessitating cleaning and replacement of parts, particularly when abrasive materials are used.

The centrifugal type water wash booth affords a longer period of time before the entire body of water has made a complete cycle through the water wash chamber. This slower movement of water permits the gathering of the residue in the open end of the tank and tends to stop particles from being carried back to the wash chamber. The cycle of water change in this type of water wash is once in every ten to fifteen minutes, depending upon conditions of design and installation. The cycle of water change in the standard water wash booth is approximately once in every two minutes.

Another significant point is that considerably less water is required than

with other types of water wash booths. This is principally due to the design, which does not permit by-passing or short-circuiting through open areas. By comparison, one gallon of water passing through the centrifugal type will do the work of four gallons in the conventional type, and, moreover, do it more thoroughly. Due to the nature of this design, the opening into the water chamber section is placed at a more appropriate location for exhausting the booth, and there is a direct passage of materials from the spray guns to the exhaust chamber.

Power Points

Two motors and two blowers are used for the centrifugal type system but no water pump is employed, thereby reducing maintenance costs. Also, electrical wiring, conduit, switches, and the eventual repairs to the pump unit are reduced to a minimum.

In operation, the centrifugal type water wash is very similar to the conventional type, inasmuch as it is the purpose in both to have as much water as possible to contact the outgoing air. As already indicated, however, considerably less water is required to produce equal results. The design of a centrifugal water wash is such that this exhaust air contacts more water, is more thoroughly washed as a result, and yet consumes less water than a nozzle type booth.

There is nothing intricate about its actual operating principle. The paint-laden air is exhausted from the spray booth through a water curtain at the entrance to a smooth U-turn passage. The high velocity air passing through the washing passage is designed so that there are no open areas to permit short-circuiting of the paint-laden air. By this method the water washes the air by impact and by folding or trapping it. Moreover, a change in direction of both air and water results in further gathering of pigment.

It is interesting to note that these pigments are gathered and deposited in a trough or sluiceway within the chamber, thus being immediately removed from the washing area. With this process the circulated water is renovated before it is again used, which permits better gathering of pigments and affords a constant washing of the interior of the washing area. Then the water drops out of the air by gravity and a reduction of air velocity permits it to flow out of the chamber into an extended portion of the tank for separation of the residue. The arrangement is such that the residue can be easily skimmed off. All small water particles are collected by a set of specially designed eliminator plates and returned to the outside of the chamber with that carrying away the residue.

Air Water-Free

Removed by the exhaust fan, the air, except for humidification, is free of water. It is too moist, however, to be returned to the room unless a dehumidifying apparatus is used. Access to both the eliminators and the washing area is through a conveniently located door. By removal of a section of the interior washing passage through this door, access to the entire interior of the chamber is possible whenever required.

A few technical pointers with respect to water wash compounds will prove timely and instructive. These compounds are especially formulated for the purpose. The operator should determine the amount of compound as an initial charge and the amount required as a daily addition. The correct amounts are usually stamped on the instruction plate of each water chamber. A simple method of titration may be used to periodically test



Whipping across the endless procession of small parts are the automatic spray guns, spreading an even coat of corrosion-resistant paint on the pieces soon to be included in the construction of a Martin bomber.

New Method of Masking

KUM-KLEEN STICKERS SPEED
SMALL MASKING OPERATIONS



KUM-KLEEN Masking Stickers, with the magic adhesive backing, are applied without moistening...adhere to all smooth surfaces...will not pop off...yet are easily peeled off when their job is done. They are available in stock sizes or die cut to your exact specifications.

Send for samples. Write, Masking Dept., Avery Adhesives, giving sizes required.

Besides masking, you'll find dozens of uses for this amazing new sticker in your plant and office.

Write, today, for complete catalog.



Kum-Kleen

EASILY REMOVED MASKING STICKERS

Avery Adhesives, Dept MF12, 451 E. 3rd St., Los Angeles, Calif.
In Canada... ENTERPRISE SALES & DISTRIBUTORS... Toronto

**TO APPLY • Simply Press On
No Moisture Required**



TO REMOVE • Simply Peel Off

the strength of the solution. Thus it is easy to determine just how much the strength has diminished, and to compensate for it accordingly. Complete instructions usually accompany a titration kit.

The booth should be operated for a half hour prior to starting any spraying operations. This permits the compound to become thoroughly mixed. A similar course is advisable on each subsequent refilling. After a short period of operation the chamber interior should be checked. The residue should be floating on top of the water and should not be adhering excessively to the sides of the chamber.

Regulating Compound

After a water wash booth is in normal operation, several tests should be made. The amount of compound should be increased or decreased and checked each time until the exact requirements are definitely established for the best results obtainable.

Figuring eight hours of daily production, the tank should be drained and cleaned every five or six days, then refilled and compound added. The chamber interior should be inspected at regular intervals. Whenever nozzles are used, these should be checked to ascertain whether they are functioning efficiently. Fans, motors and pumps of such booths should be greased once every 60 days for best performance and longest service.

In using a liquid water wash compound, usually one quart to every 200 gallons of water is advisable for an initial charge, adding 1/6 the original charge at the end of every 4 hours of production. In using a granular water wash compound, 1/3 ounce per gallon of water is an accurate measure

for an initial charge, adding 1/6 of the original charge at the end of every 4 hours of production. These figures are based on average requirements and may not apply in all cases. Where such factors as the nature of the paint, the type of thinners used, the hardness of the water, etc., alter conditions, more or less than the quantity usually recommended may be necessary.

Water wash booths may be used when spraying any of the common materials, but they offer a particular advantage when such materials as primers and enamels are being applied where the residue is heavy and sticky. They are also desirable in spraying vitreous materials, not only for the control of objectionable dust, but also for the reclamation of solids. A notable advantage of the water booth is the reduction in cleaning costs, both inside and outside the building. Frequent cleaning of fan, pipe and stack is eliminated. Exterior appearance of the building also requires less attention. Furthermore, paint vapor does not work its way back into the plant to be caught in the fresh air intake filters. Finally, there is less spray dust within the spray room to mar the finish of freshly painted products.

Finishing Pointers

For efficient finishing, operators should be furnished an air duster for removing loose dirt, dust and other foreign particles lest the work become defective. Lighting conditions should be of the best. Vapor-proof fixtures should be installed. The plant should be clean at all times to reduce the fire hazard as well as in the interests of the quality of the output. Fire prevention and fire fighting equipment should be provided. All brushes, when

not in use, should be washed out in reducer. The spray equipment will only give satisfactory results when cleaned thoroughly after each day's work. Extra attention should be given to the fluid lines when draining and washing them daily. There should be adequate containers for mixing lacquers, dopes, etc. A measuring cup and a scale are also advisable for accurate graduating and balancing. The finishing departments should have a temperature ranging from 70 to 80° F. and be well ventilated. Only steam heat should be used where lacquer and dope are under process.

Spray booths, of course, should be large enough for the work to be performed conveniently. Suitable exhaust equipment, at all phases, should be provided; also racks and jigs for holding and handling wings, cowling, and other large parts under process. Pulleys and hoists are frequently used for drying parts. There should be an air compressor and tank capable of maintaining at least 80 lbs. pressure for one or more spray guns during continuous operation.

An air unit to remove oil and water from the air and to regulate the pressure is also necessary, as are oil and water traps in the supply line. Dope, lacquer and primer spray guns should be provided. Syphon feed guns are adequate only for the smaller plants. Large plants such as the Glenn L. Martin Company, of course, have the very finest and most efficient pressure feed equipment. When using lacquer and dope in any quantity, pressure tanks, available in sizes from 2 gal. capacity up, are appropriate. Touch-up guns are also necessary.

(Continued next month)

IRCO-IZING PROCESS

A CHEMICAL DIP TREATMENT FOR IRON, STEEL,
ZINC AND CADMIUM PROVIDING A RUST INHIBIT-
ING BASE FOR PAINT OR A FINAL FINISH

IRCO-IZING Platers

Standard Plating Co.	Baltimore, Maryland
Fox Products Co.	Philadelphia, Penna.
Keystone Chromium Co.	New York, N. Y.
Commercial Plating & Welding Co.	Cleveland, Ohio
Dixie Electro-Plating Co.	Houston, Texas
Great Lakes Plating & Japanning Co.	Chicago, Ill.
Homer A. Doerr Co.	St. Louis, Mo.
General Plating & Rustproofing Co.	Minneapolis, Minn.

International Rustproof Corp. CORROSION ENGINEERS

12507-15 Plover Ave., Cleveland, Ohio
Turn to Page 629

The Buy-Word Is "Enthane" for ENAMEL STRIPPERS

For the past 4 years Enthane strippers have been used by hundreds of manufacturers for quickly removing organic finishes from civilian goods.

And NOW—fast working, patented* Enthane strippers are helping to speed the flow of war goods.

Here's what Enthane strippers do:

- ★ Strip synthetics, japans, lacquers rapidly.
- ★ Leave all metals clean and bright.

SPECIAL STRIPPERS for SPECIAL PROBLEMS —
TELL US YOUR PROBLEM!

THE **Enthane** CO.
NEW HAVEN, CONN.

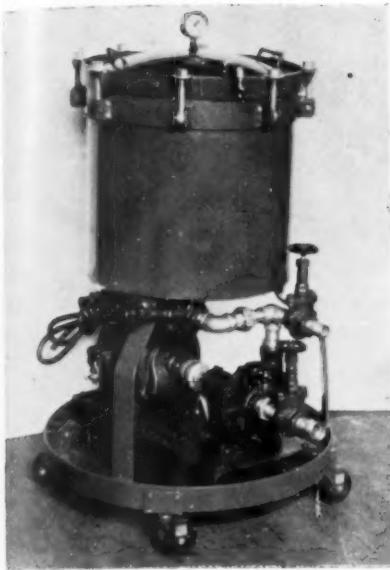
*Protected by U.S. Patent No. 2242106

METAL FINISHING, December, 1942

Finishing of Filters

By CARLETON CLEVELAND

Highland Park, Ill.



Painted Unit used for Filtering Plating Solutions, Assembled and Ready for Operation.

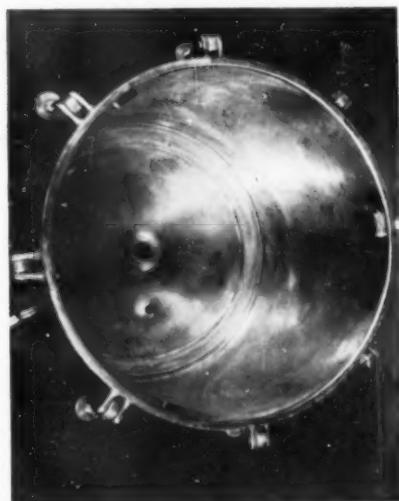
THE finishing operations on a somewhat extensive line of filtering equipment manufactured by the Sparkler Manufacturing Company, at Mundelein, Illinois, might well be divided into two distinct divisions,—the painting of sheet steel filters and the polishing of the stainless steel and alloy metal filters. These filters are compact units, ranging in capacities from 50 to 10,000 gallons per hour, with filtering areas of from 1 3 to 150 sq. ft., the filter tanks and plates being constructed of sheet steel, stainless and alloy steels, "monel" metal, or bronze, according to requirements for which they are to be used.

Filters having sheet steel tanks, after fabrication are smoothed and sanded on the inside, while on the outside surface the welded joints are smoothed by using either grinding wheels on a flexible shaft machine or with files, and then finished by sanding with emery cloth. The surface is then washed with a proprietary cleaning compound—a rust inhibitive. This is followed by a brushed on coat of enamel in battleship grey, which has been found very serviceable in meeting the requirements where heat and acid must be contended with.

Regardless of the type of filter tank, the size and metal used in their con-

struction, they are mounted on fabricated and welded steel bases with ball bearing casters. These bases are pretreated and finished in all cases the same as the painted units above described.

Tanks constructed of stainless steel, monel metal, or other alloy steels, or bronze, used in various filter operations requiring non-corrosive metals, are sent to the grinding department where operators with suitable grinding wheels on flexible shaft machines or portable power tools smooth down the welds and any pits or roughened spots, first using a coarse stone and then changing to a medium, and finally to a fine stone. This is followed by polishing with a canvas sanding wheel



View Showing Highly Polished Interior of Stainless Steel Filter Tank for Filtering Corrosive Chemicals.

of 30 grit, which in turn is followed by polishing with a canvas grinding wheel of 120 grit, after which it is given a complete polishing with a felt wheel, using a commercial polishing compound.

In the finishing of bronze tanks for use in filtering cider and fruit juices, a medium or fine stone is used, followed by sanding with a canvas wheel and finally with felt polishing wheel. As Sparkler filters are frequently used in the processing of fine chemicals and medicines, a very high finish, free from all pits and indentations is imperative.

The filter plates are in all cases of the same material as the pressure tanks and are pretreated, ground, and polished in the same manner as the inside of the tanks in which they are used.

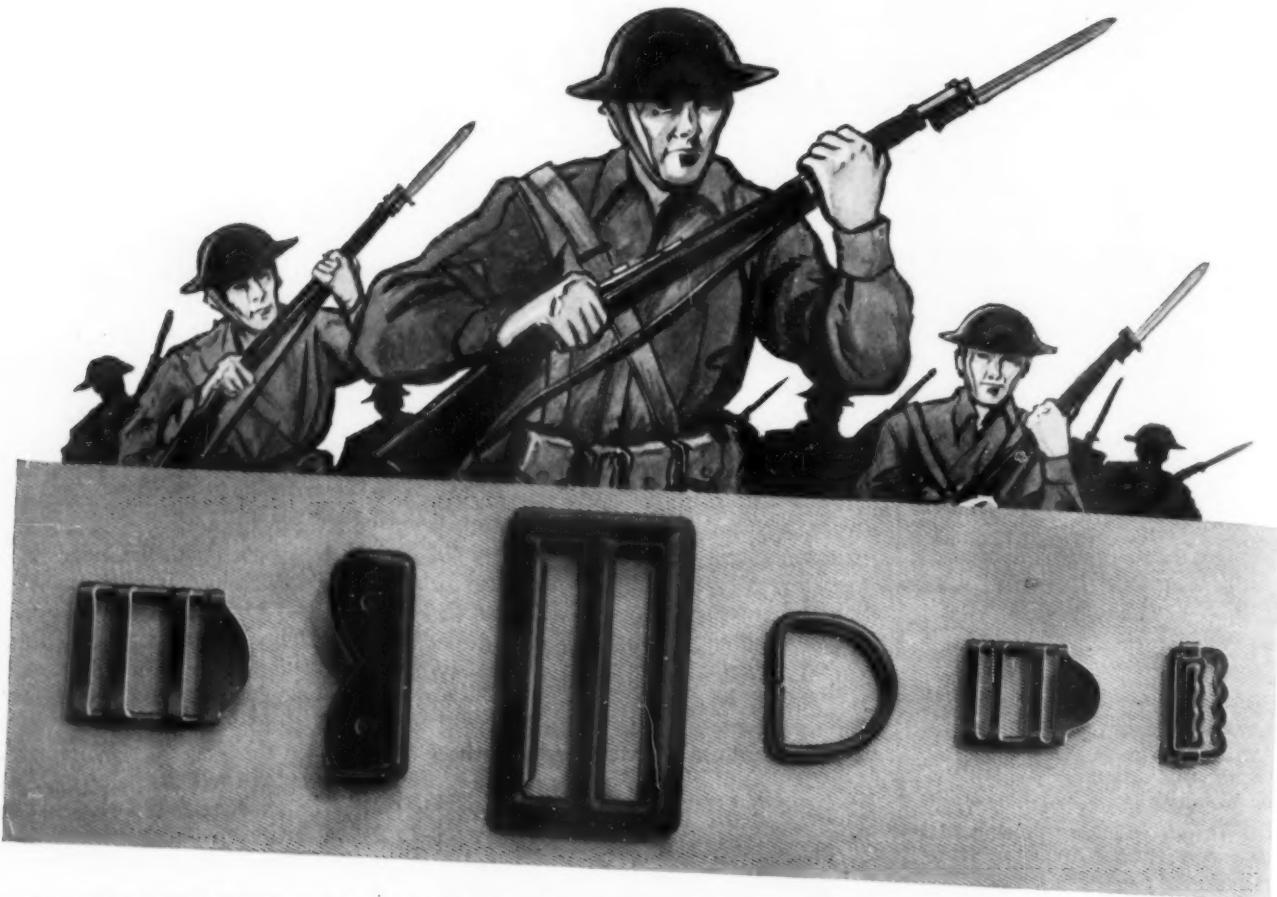
For handling certain types of products, such as varnish, wax, syrup, honey, or other heavy liquids which must be kept hot to facilitate filtering, the units are constructed with a steam jacket. In such case the inner surface of the inner shell is given a smooth finish and high polish, while the outside surface of the outer shell is prepared and finished the same as the filters made of sheet steel—with enamel finish. The outer surface of the inner shell and the inner surface of the outer shell are left unfinished.

In some instances tanks used for filtering certain products must be either rubber-lined or lead-lined. Such coatings are applied by the spray process. One other outside finish occasionally required is that of a baked-on plastic coating on the welded steel unit, which gives a glass-like finish.

When the filter is finally assembled and ready for shipment, with splash-proof motor installed on the base, all electrical connections are carefully tested so that the filter, when received by the consignee, may be unpacked and connected to the electrical outlet ready for operation.



Operator using Buffing Wheel on a Portable Grinder for Polishing Welded Seams of Stainless Steel Tank.



YOU'LL BE DELIGHTED WITH THIS TEN FEATURE FINISH!

EGYPTIAN LUSTRELESS BLACK BAKING ENAMEL Meets All Requirements of Quartermaster Spec. JQD-144.

This superb new coating for Equipment Hardware made of ferrous or zinc alloy metals offers manufacturers the following ten required features:

1. Resistance to Accelerated Weathering.
2. Resistance to Salt Spray.
3. Resistance to De-lousing.
4. Resistance to Chemicals.
5. Resistance to Cold.

6. Resistance to Boiling Water.
7. Resistance to Petroleum Solvents.
8. Resistance to Abrasion.
9. Flexible—(Will not readily chip, check, or flake.)
10. Completely lustreless.

Note especially the lack-lustre (dull) finish — comparative tests invited. EGYPTIAN meets all resistance requirements with a lustreless finish — a difficult laboratory achievement.

Send for Government "Spec." Book MF12

These are a few of the more important Government "Spec." finishes which we can furnish. For more complete list send for "Spec." book.

ES-4AB SYNTHETIC TYPE PROTECTIVE COATING
* JQD-144 LUSTRELESS BLACK BAKING ENAMEL
AXS-736 CLEAR FINISH
FOR STEEL CARTRIDGE CASES
AXS-480 LUSTRELESS LACQUER ENAMEL FOR AMMUNITION
JXS-684 TYPE I and II LUSTRELESS PAINT FOR AMMUNITION
NITROCELLULOSE LACQUER ENAMEL FOR AMMUNITION
3-162-A ZINC CHROMATE PRIMER
P-27-b-2 ZINC CHROMATE PRIMER
AN-TT-P-456 ZINC CHROMATE PRIMER
PXS-979 LACQUER ENAMEL FOR AMMUNITION (CELLULOSE TYPE)



EGYPTIAN LACQUER MANUFACTURING CO.
ROCKEFELLER CENTER, NEW YORK, N. Y.

EGYPTIAN

Superior FINISHES

Notes On Finishing

By E. M. Stephenson

Mask or stencil for doing inlaid work. When a mask or stencil is needed for doing designs on flat or curved work, the easiest way to make a mask is to place a sheet of thin lead in your drop press, then plate with brass the desired thickness of mask, then cut the design out and you have a perfect mask. It will fit like the back of a watch.

Fire Hazard. Now is the time to warn the help about the dangers of fire. So many men and women are employed who never worked in a shop before, and do not know how easy it is to start a fire. How about those oily rags that so many men and women hang on the steam radiators? How about those shoes with nails in the soles that are liable to strike a nail in an old wooden floor? How about those greasy overalls that are rolled up in a bunch and thrown in a corner? How about all those thinner cans that are left open to fill the room full of fumes and how about all those rubbish barrels that are kept in the finishing room, and hundreds of other careless things that are done in and around the finishing room?

"*Lac Saw*". The name is one coined by the writer.

If you get some of the wood flour or the dust that is made when you use an electric sander, take some of the wood flour, and add a heavy bodied wood lacquer. After you have moistened the flour with thinner, this will give you a good material to fill in cracks or dents on furniture and can be stained and will not shrink. It also makes an excellent wood filler. You can fill in dents and fill and stain in one day.

I have a can of this material that is over a year old and still in use. If it does get a little hard, just add a little thinner, then a little lacquer and use.

**BUY WAR BONDS
AND STAMPS**

ORGANIC FINISHING SECTION

TANKS FOR PROTECTION



PROTECTION FOR TANKS

Every Spray Booth shipped from our doors helps the war effort. It plays an important part in the process of painting army tanks, aircraft parts, and in some instances, the complete plane.

Hydro-Whirl Spray Booths are doing such a praiseworthy job because their unique design and construction makes possible a recovery of an unusually high percentage of paint—an accomplishment much desired by the War Production Board. As you know,

the reclamation of wasted spray paint is emphatically urged by the conservation Division of W. P. B.

In addition to the salvaging of essential chemicals, Hydro-Whirl has the advantage of also reducing maintenance costs, as wet paint fumes are not drawn through the exhaust fan and discharge ducts. The necessity for cleaning beyond the booth is thus eliminated. Moreover, since the cleaned air may be returned to the building, heating costs are materially reduced.



INDUSTRIAL SHEET METAL WORKS
624 East Forest Ave., Detroit
New York Office—370 Lexington Avenue

IRCO-IZING PROCESS

A CHEMICAL DIP TREATMENT FOR IRON, STEEL,
ZINC AND CADMIUM PROVIDING A RUST INHIBIT-
ING BASE FOR PAINT OR A FINAL FINISH

In order for you to become entirely familiar with IRCO-IZING PROCESS, we will be very glad to treat samples of your production, without obligation, in our laboratory, and return them to you for examination and test.

International Rustproof Corp.
CORROSION ENGINEERS
12507-15 Plover Ave., Cleveland, Ohio

Turn to Page 692

Patents

Apparatus For Coating Articles

U. S. Pat. 2,282,252 Walter J. Scott, Hinsdale, and George Stuhlfauth, Chicago, Ill., assignors to Western Electric Company Inc., New York, N. Y. The coating apparatus described here has a tray for holding articles to be coated. This tray is moved by a conveyor through the apparatus. Vitreous enamel is automatically applied to the articles on the moving tray. They are also removed from and placed on the tray without disturbing the enamel deposit on the article.

Pigment Treatment

U. S. Pat. 2,282,303 John Owen Morrison, Chatham, and Ben H. Perkins, Jersey City, N. J., assignors to E. I. du Pont de Nemours & Company, Wilmington, Del. Pigments may be improved by a process which consists of incorporating into an aqueous pigment paste the following ingredients.

1. A petroleum nitrogen base.
2. A volatile solvent having a boiling range between 60°C. and 150°C.

The material is well mixed and then dried.

Varnish

U. S. Pat. 2,299,433 F. R. Stoner, Jr. & D. M. Gray, assignors to Stoner-Mudge, Inc., Oct. 20, 1942. A finishing varnish for application to decorated metal sheet comprising (1) a copolymer of a vinyl halide and a vinyl ester of a lower aliphatic monocarboxylic acid, and (2) a copolymer of a vinyl halide, a vinyl ester of a lower aliphatic monocarboxylic acid, and a substance selected from the group consisting of maleic acid, maleic anhydride and the lower alkyl esters of maleic acid, and (3) a solvent for the whole composition.

Acetoacetic Ester-Formaldehyde Resins

U. S. Pat. 2,277,479 Gaetano F. D'Alelio, Pittsfield, Mass., assignor to General Electric Company, New York. A resinous composition can be prepared by refluxing ethyl acetoacetate and an aqueous solution of formaldehyde under heat. They are taken in the ratio of one mol of the former to substantially more than one mol of the latter. They are refluxed in the presence of morpholine as a catalyst. The morpholine is present in the ratio of about 1 part of morpholine to 100 parts of ethyl acetoacetate. The reaction mixture is heated at about 70°C. to remove the water and then heated to about 160°C. until an insoluble resin results.

Alkali Resisting Coating

U. S. Pat. 2,276,519 Joseph L. Sherk and Corliss F. Cummins, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich. A coating composition contains as the sole film forming ingredients, a cellulose ether which is soluble in organic solvents, and from 20 to 60 percent of its weight, of a heat-hardenable, oil reactive phenol formaldehyde resin. It is characterized by the ability to deposit a film which, when heat-hardened at temperatures between 90° and 150°C. It is insoluble in organic solvents and has a melting point above 160°C. This is at least 35 degrees centigrade higher than that of the film before hardening.

Non-reactive Pigment

U. S. Pat. 2,277,393 Harlan A. Depew, Columbus, Ohio, assignor to American Zinc, Lead & Smelting Co., St. Louis, Mo. Zinc oxide pigment particles can be coated by applying to separate individual particles of the pigment a plurality of ingredients. They are capable of reacting with each other to produce a synthetic resin. The ingredients are caused to react *in situ* with each other while on the separate particles. The process produces thin separate coating films of a synthetic resin on the individual particles.

Apparatus For Spraying Bottle Caps

U. S. Pat. 2,277,092 Henry A. Fink, Pelham Manor, N. Y., assignor to Continental Can Company, Inc., New York, N. Y. An apparatus for spraying crown caps and the like, consists of a supply pipe, a spray nozzle and a hood. The hood is designed so that it can be rigidly attached to the nozzle and pipe. The hood is shaped so as to have a concentric inner surface which extends down and spreads, so that the lower portion fits over the flange of the bottle cap. This centers the cap, directly below the spray nozzle and controls the area of the cap which is to be sprayed.

Lead Aluminate Pigment and Paint

U. S. Pat. 2,277,061 Louis E. Barton, Windsor, Conn. A method is described in this patent for making an essentially pure, white hydrated lead aluminate pigment which has improved hiding power. It also is claimed to have improved dispersibility in vehicles. It consists in making a mixture of such lead and aluminum compounds as will upon heating, supply to the product only lead and aluminum oxides. The mixture is heated until the oxides chemically combine in the solid phase without fusion. The product is then treated with water for a time sufficient to form the hydrated lead aluminate pigment, but insufficient to disolor the product.

Lacquer

U. S. Pat. 2,296,337 J. S. Cummings, assignor to Interchemical Corp., September 22, 1942. A lacquer comprising two solvent-soluble film-forming cellulose derivatives of the class consisting of cellulose esters and cellulose ethers dissolved in a solvent mixture capable of dissolving both cellulose derivatives, and consisting of rapidly evaporating solvent for both cellulose derivatives and such substantial quantities of additional solvent which dissolves only one of them, and evaporates at a substantially lower rate than the rapidly evaporating solvent so that the solvent is unbalanced as to one of the cellulose derivatives and balanced as to the other, the ingredients being so proportioned that on drying, the cellulose derivative as to which the solvent is unbalanced and which comprises at least 15% of the film, precipitates during the early stages of drying as discrete particles, and the second cellulose derivative as to which the solvent is balanced and which comprises at least 25% of the film, forms a glossy continuous film in which the precipitate is embedded to give opacity to the film.

Coating Composition

U. S. Pat. 2,281,940 Robert R. Lewis, Baldwin, N. Y., assignor to Vulcan Proofing Company, Brooklyn, N. Y. This coating composition consists substantially of 100 parts of polymerized isobutylene, 1 part of stearic acid, 10 parts of ethyl cellulose, 20 parts of paraffin wax and a pigment.

New Paint Shop

Straight-line production methods were kept in mind during the planning of the recently-completed paint shop at the Westinghouse East Pittsburgh works. Switch-gear panels and switchboards are brought in for painting on flat-topped trucks that run on tracks from the assembly aisle through the paint shop and on out to the shipping floor.

A special feature of the booth is the method of handling the clean ventilating air. A down draft system is used whereby air from outside the booth, 70 by 25 by 15 feet high, is drawn through the ceiling. The air is cleaned as it passes through 180 wire mesh washable filters, each 20 by 20 by 2 inches thick, covering the entire ceiling area. Paint spray in the room is carried downward with the air through open grill work in the floor and is deposited on a water surface in a pit covering nearly the area of the floor. The water in the pit is recirculated by four motor-driven pumps each having a capacity of 5000 gallons. Makeup water is supplied to retain the proper water level.

The air drawn downward through the floor grill is expelled to the shop by four fans, each driven by a 15-horsepower motor. Total air exhausted is about 200,000 cubic feet per minute, the equivalent of 380 air changes per hour.

NEW EQUIPMENT AND SUPPLIES

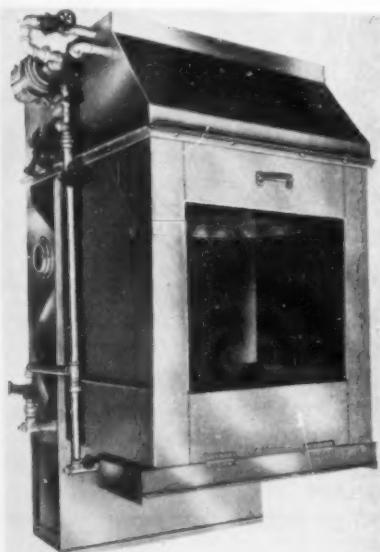
LATEST COMMERCIAL DEVELOPMENTS IN ORGANIC FINISHING

New Water-Wash Paint Spray Booth

Aqua-Restor Division, Mayer Manufacturing Corp., 45 Division St., Brooklyn, N. Y., are the manufacturers of the single compartment paint spray booth illustrated which features rear and side water-impingement walls.

The makers of this equipment claim that the absence of spray nozzles eliminates the possibility of clogging and that only low horse-power pumps are required. They also claim that due to the elimination of moving parts, little servicing is necessary. Used water may be drained directly or pumping can be arranged for distant disposal.

The unit illustrated is equipped with a turn-table and fluorescent lighting and is available in single and multiple units. Bulletins are available from the company.



Paint Spray Booth

New Rubbing Compound

Formax Manufacturing Company, 3985 18th Street, Detroit, Mich., have announced their development of a new hand rubbing compound which is said to perform four functions simultaneously. "4-MAX Hand Rubbing Compound", as this product is called, is designed to clean, rub down, polish and wax at the same time and to be an apt remover of lacquer oxidation, scum, road film and dead paint pigment. It is recommended for rubbing down freshly sprayed lacquer and enamel finishes as well as for reconditioning old surfaces.

Coating For Degreasing Baskets

A new coating for wire transporting and degreasing baskets is now being manufactured by Resistoflex Corporation, Belleville, N. J., and is already being used in the aircraft division of Packard Motor Car Co. Known as Resistoflex Solution, the new coating is a modified polyvinyl alcohol resin in solution form. Wire baskets can be coated right in the shop by first dipping and then passing through a drying oven. The solution dries to a tough, resilient, solvent proof, abrasion-resistant coating that will not tarnish or otherwise injure the most highly finished metal engine parts. Use of this coating permits employment of wire baskets, in which the contents are visible even when stacked, in place of less durable and convenient wooden boxes. The same solution is also used at Packard to coat workers' shoes that are constantly exposed to cutting oils and solvents which are injurious to the leather.

New Automatic Shell Coating Equipment

A new line of high speed, automatic shell coating equipment has just been announced by The DeVilbiss Company.

Designed for a wide adaptability in finishing operations, this equipment automatically paints bombs, shells, shot, grenades and cartridge cases of all kinds, in sizes ranging from 20 to 155 mm. Some types spray exteriors only, while others paint both inside and out, depending upon the requirements of the job. The outfit handle all of the finishing and coating materials commonly specified for ammunition.

Every unit, though basically similar, is engineered specifically to do a particular job. Spraying stations are located at one or both ends of the conveyor depending upon specified production rate. On one type three stationary automatic spray guns are actuated only when each shell moves within spraying range. Another outfit employs two guns—one for inside and one for outside spraying. Both are automatically moved horizontally and vertically with the shell. A third hook-up for shells having an inside adapter has a spray gun with a hook-type extension. This and another moving extension gun coats all interior surfaces while a third moving gun paints the outside. Conveyor length is determined by the drying and handling requirements of each job and either dry or water wash exhaust is furnished as desired.

In the development of this new line of equipment The DeVilbiss Company has given

every consideration to the need for high speed with uniform finish and for the conservation of as much valuable production floor space as possible.

Further details regarding the equipment may be obtained by writing The DeVilbiss Company, Toledo, Ohio.

Infra-Red Dryer for Polishing Wheels

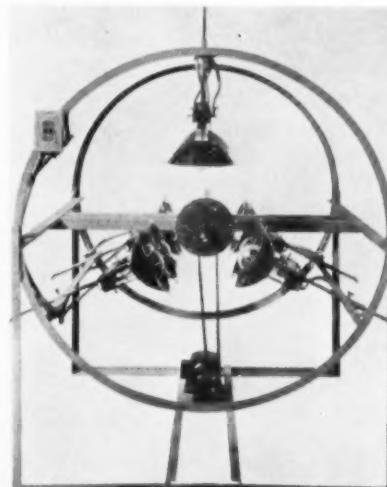
Park Chemical Company, 8074-8110 Military Ave., Detroit, Mich., have developed an infra-red ray machine which is said to polish wheels 30 minutes after application of "head," as compared with the 24 hours usually required for this process in ovens.

The wheels pass three lamps in each revolution. The lamps are adjustable to any distance from the wheels and various diameter wheels can be mounted on the drying shaft by use of special bushings.

Small floor space is required as the unit is 54" square, 66" high with the working height of the loading shaft 42" from the floor.

Mechanical details of the machine include 12 gold-plated reflector lamps of 240 watts, 115 volts each; a shaft which ordinarily is 1" in diameter; two control switches for adjustable lamps; a 1/6 H.P. motor, single phase, 60 cycle, 1725 R.P.M.; a speed reducer, 60/1 giving a working speed to the shaft of approximately 12 R.P.M. but which can be regulated for other speeds, and pillow block bearings with shafts of 24" loading space in each direction.

The unit is furnished with casters for portability.



Infra Red Dryer

Shop Problems

Correction

The solution to Shop Problem 3 which appeared on page 623 of the November Organic Finishing section should be as follows:

Since the enamel weighs 12.0 pounds per gallon and contains 60.0 per cent by weight of solids, each gallon con-

$$\text{tains } 12.0 \times \frac{60.0}{100} = 7.2 \text{ pounds of}$$

solids and $12.0 - 7.2 = 4.8$ pounds of volatile solvents. Now, to produce a material containing 25.0 per cent solids with 7.2 pounds of solids,

$$\left\{ \frac{7.2}{25.0} \times 100 \right\} - (7.2) = 21.6$$

pounds of volatiles are needed. However, in the original gallon of high solids enamel there were 4.8 pounds of solvents and therefore $21.6 - 4.8 = 16.8$ pounds of thinner are required to produce a solids content of 25.0 per

cent. Since the thinner weighs 6.85 pounds per gallon, $16.8 \text{ pounds} = \frac{16.8}{6.85} = 2.45 \text{ gallons of thinner.}$

Problem 4. Aluminum Content

Problem: A manufacturer of metal goods, bidding on a certain contract, finds that the specifications call for an aluminum finish containing no less than 30.0 per cent of metallic aluminum based on the weight of the non-volatile solids in the vehicle. If the vehicle which the manufacturer proposes to use weighs 8.0 pounds per gallon and contains 25.0 per cent by weight of solids, and if the aluminum paste on hand contains 70.0 per cent by weight of metallic aluminum, what weight of aluminum paste must be added to each gallon of vehicle to produce the specified aluminum content? Also, if the aluminum paste bulks 0.08 gallon to the pound, what is the weight of metallic aluminum in one gallon of the paste-vehicle mixture? (Assume that the paste and vehicle volumes are additive.)

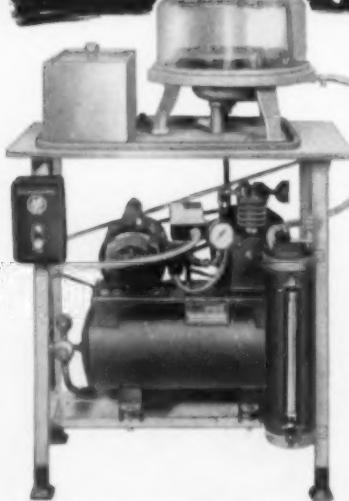
Solution: One gallon of vehicle contains $8.0 \times \frac{25.0}{100} = 2.0 \text{ pounds of}$ non-volatile solids. Therefore, to obtain a concentration of 30.0 per cent of metallic aluminum, $\frac{2.0 \times 30.0}{100} =$

$0.6 \text{ pound of metallic aluminum is required. However, since the aluminum paste contains only } 70.0 \text{ per cent of metallic aluminum, } 0.6 \times \frac{100}{70.0} = 0.86 \text{ pound of paste must be added to each gallon of vehicle.}$

Since the aluminum paste bulks 0.08 gallon to the pound, the 0.86 pound calculated above equals $0.08 \times 0.86 = 0.0688 \text{ gallon. When this paste is added to one gallon of vehicle, a total volume of } 1.0688 \text{ gallons results. In this volume there is } 0.6 \text{ pound of metallic aluminum. Therefore, in one gallon of the mixture there is } \frac{0.6}{1.0688} = 0.562 \text{ pound of metallic aluminum.}$

Next Month: Cost of Aluminum Finishes.

BELKE BELL JAR SALT SPRAY TESTER for small parts



Belke Bell Jar Salt Spray Testing Machine is found as standard equipment in all efficient plating plants. Is compact, easy to operate and moderately priced. Glass Cover 7" high x 13" in diameter enables operator to observe machine in operation at all times. Is equipped with automatic switch and pressure regulation of compressor to insure steady uniform spray and economical operation. Has humidifier for cleaning and dampening air to eliminate crystallization of salt on nozzles. Gauges are conveniently located. Is just as effective as large cabinet style salt spray testers with exception of capacity which is smaller and more economically produced. Rubber lined. Comes fully equipped and ready to operate. Simply attach to any light current and start your test. (Be sure and specify electrical requirements.)

Price complete as illustrated above with tank for continuous replenishment of solution.....

\$210.00

Price with Bell Jar, Compressor and Table only.....

\$175.00

Belke also manufactures cabinet style salt spray machines for larger work — prices and details can be supplied on request.

BELKE MANUFACTURING COMPANY
947 N. Cicero Ave.
Chicago, Ill., U. S. A.

AMBER FLAKES for efficient, economical METAL BURNISHING!



Good lubricating properties . . . good "body" . . . ready solubility . . . these are the essential qualifications of a soap for metal burnishing. And Amber Flakes meets all of these qualifications generously.

You can depend upon this uniformly pure, neutral, high titer soap for top-notch, economical metal burnishing. Try Amber and you'll agree.

PROCTER & GAMBLE Industrial Sales Dept. CINCINNATI, OHIO
BRANCH OFFICES AND WAREHOUSES IN PRINCIPAL CITIES

IRCO-IZING PROCESS

A CHEMICAL DIP TREATMENT FOR IRON, STEEL, ZINC AND CADMIUM PROVIDING A RUST INHIBITING BASE FOR PAINT OR A FINAL FINISH

SIMPLE TO INSTALL

Only 2 tanks needed for treatment.

1. Processing tank.
2. Tank for water rinse.
Both heated at 180 F.

International Rustproof Corp.
CORROSION ENGINEERS
12507-15 Plover Ave., Cleveland, Ohio

Turn to Page 693

INFRA-RED LAMPS DRY TRANSFORMER TANKS IN 8 MINUTES

A battery of 1,368 infra-red lamps is helping speed the production of electric transformers needed for defense by doing an hour's job in 8 minutes.

The electric drying lamps dry transformer tanks from six to eight times as fast as the former method, according to H. V. Putman, manager of the Westinghouse transformer division, Sharon, Pa. The lamps are no more expensive to install or maintain than the old steam heated baking ovens, but has stepped up tremendously the production of distribution transformer tanks at a time when speed is of utmost importance. Westinghouse has increased its production of distribution transformers 65 per cent in the last year, and at present nearly 50 per cent of the output is being supplied to the Army and Navy and to industrial plants engaged in national defense production. These small transformers are an important link in the production of light and power for air fields, munitions plants, naval bases, shipyards, fortifications, cantonments, and the Panama Canal.

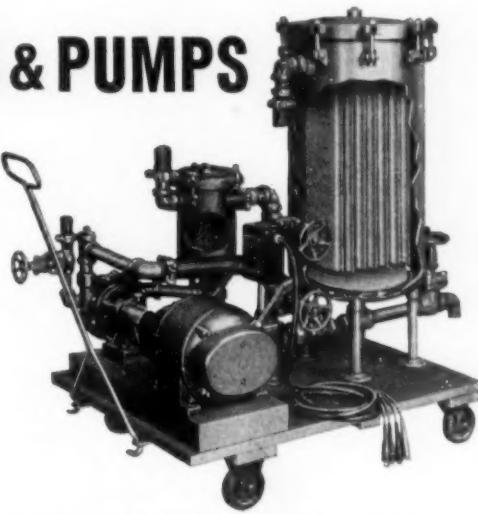
In the painting process, the transformer tanks are hung by hooks from an endless conveyor chain. Traveling at four feet a minute, the tanks first pass a workman who paints them inside and out in a few seconds with a spray gun. Then the tanks take their eight-minute ride between the two banks of drying lamps where infrared radiation dries the paint by raising its temperature quickly to about 300 degrees Fahrenheit. Each bank of 250 watt lamps is about four feet high and 32 long. They consume a total of 342 kw. which is enough to supply the normal lighting requirements of more than 500 average homes.

The present installation dries only the base coat of paint. But more lamps and special machinery are being installed to make it possible to spray and dry both base and finish coats in one continuous, 25-minute operation. To make this possible, a cooling chamber is being installed to bring the temperature of the tanks down to about 150 degrees after they emerge from the first drying. Such cooling will prevent "blistering" of the finish coat as it is sprayed on.

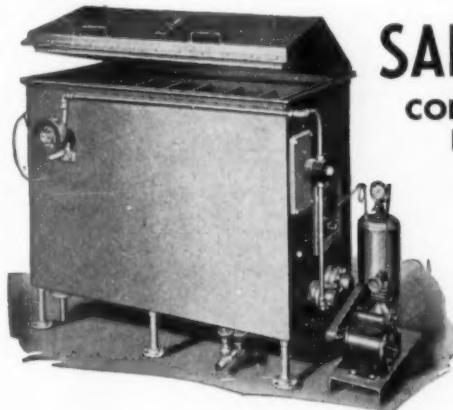
FILTERS & PUMPS

For Filtering, Pumping,
or Circulating:

ELECTROPLATING
SOLUTIONS
DEGREASING
SOLVENTS
CLEANERS
OILS
COOLANTS
LACQUERS
KEROSENE
VARNISH
ALCOHOL &
OTHERS



We carry a large stock of Filter & Pump accessories, hose, valves, fittings. All grades of filter cloth, filter aids, & FILTERBESTOS. Ready for shipment.



SALT SPRAY CORROSION TEST EQUIPMENT

Designed to determine the corrosion resisting qualities of plated or coated metal, alloys, metal parts, organic finishes, etc. This equipment combines necessary features so that Salt Spray tests can be conducted to specifications at Controlled Temperatures to 130 Deg. Fah.

"Write for New Literature and Particulars"

INDUSTRIAL FILTER & PUMP MFG. CO.
3017 WEST CARROLL AVENUE CHICAGO, ILLINOIS

IRCO-IZING PROCESS

A CHEMICAL DIP TREATMENT FOR IRON, STEEL,
ZINC AND CADMIUM PROVIDING A RUST INHIBIT-
ING BASE FOR PAINT OR A FINAL FINISH

A VERY simple speedy process fully meeting
GOVERNMENT rustproof specification calling for
a phosphate coat.

International Rustproof Corp.
CORROSION ENGINEERS
12507-15 Plover Ave., Cleveland, Ohio
Turn to Page 686



Solve your filter problems!

SPARKLER HORIZONTAL PLATE **FILTERS**

**purify and renovate all plating solutions
Eliminate impurities and solids**

Enclosed system filters designed for use with all filter aids assure a smooth finish to your plating jobs.

With the Sparkler Filter cleaning is more thorough, faster and simpler—less time and less powder is required for precoating. It permits building up thicker filter cake, giving longer cycles. All filter plates are equipped with perforated metal screens for supporting paper cloth or screens to prevent possibility of rupturing paper under pressure.

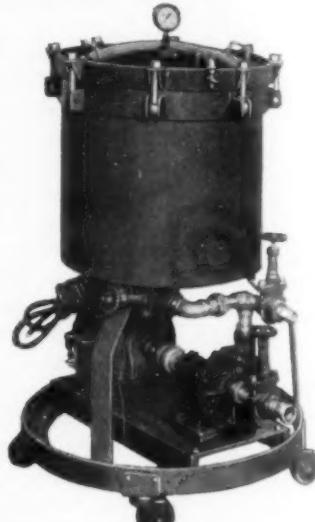
Whatever treatment is necessary for the solution or precoat, the Sparkler horizontal plates for retention of filter aids are perfectly adaptable. Sparkler Filters are built of stainless steel or rubber-lined construction and strongly welded for greater life—portable and compact.

Demonstration arranged at your own plant without cost or obligation.

SPARKLER MANUFACTURING COMPANY

286 LAKE STREET

MUNDELEIN, ILLINOIS



CAPACITIES:
60 to 10,000
gallons per hour

SPARKLER FILTERS
WITH THE HORIZONTAL PLATES



✓ check substitute materials
with
Taber ABRASERS

New, more accurate technique for testing wear resistance of surface finishes and sheet material is now possible with Taber Abrasers.

Scientific wearing action by "Calibrase" wheels is automatically totalled on built-in wear cycle counter.

Today's substitute materials make Taber Abrasers absolute necessities in your plant and laboratory. Write for Bulletin 2014 illustrating wide applications.

TABER INSTRUMENT CORP.
111MF GOURDY ST., NORTH TONAWANDA, N. Y.
Designers and Builders of Precision Scientific Apparatus

Agateen LACQUERS

All types of Clear Lacquer for Metals

BUFFING
LACQUER

for Cloisonne Reproductions

Air-Dry Priming Lacquer
Water Dip Lacquer

Elastic

Non-blushing

Agate Lacquer Mfg. Co., Inc.

11-13 Forty-third Road
LONG ISLAND CITY, N. Y.

Agateen —The Last Word in Quality

Index To Volume 40 Organic Finishing Section Of Metal Finishing

ARTICLES

Abrasives—A Tool, Coated	51
Air Compressors, Finishing	277
Aluminum Die Castings, Finished for	220
Aluminum in the Chromic Acid Bath, Anodic Treatment of	106
Anodic Treatment of Aluminum in the Chromic Acid Bath	106
Baking System, A Modern Infra-Red	561
Brushes, Suggestions for Conserving Paint	574
Chlorinated Solvents for Metal Degreasing, The Stabilization of	448
Chromic Acid Bath, Anodic Treatment of Aluminum in the	106
Coaches, Finishing of Greyhound	163
Coated Abrasives—A Tool	51
Coating by the Electric Spray Method	621
Coatings, Luminescent	335
Compressors, Finishing Air	277
Conditions During 1941 and the Outlook for 1942 in the Industrial Finishing Field	50
Conserving Paint Brushes, Suggestions for	574
Containers, Finishing Steel	169
Defense Products, Finishing	228, 279, 339
Degreasing, The Stabilization of Chlorinated Solvents for Metal	448
Die Castings, Finished for Aluminum	220
Dipping Questionnaire, A	627
Electric Spray Method, Coating by the	621
Enclosures, World's Largest Paint Spray	629
Evaluating Spray Operators	507
Fewer But Better Finishes	158
Filters, Finishing of	687
Finishes, Fewer But Better	158
Finishes for Aluminum Die Castings	220
Finishing Air Compressors	277
Finishing Defense Products	228, 279, 339
Finishing Field, Conditions During 1941 and the Outlook for 1942 in the Industrial	50
Finishing Materials, The Status of Organic	439
Finishing of Filters	687
Finishing, Near Infra Red and Metal	112
Finishing of Dairy Trucks	389
Finishing Material, Storing	334
Finishing of Greyhound Coaches	276
Finishing of Washing Machines	163
Finishing Steel Containers	112
Finishing Warplanes	681
Fire Protection for Organic Finishing	566
Flame-Priming Steel for Painting	395
Industrial Finishing Field, Conditions During 1941 and the Outlook for 1942 in the	50
Infra-Red and Metal Finishing, Near	389
Infra-Red Baking System, A Modern	561
Largest Paint Spray Enclosures, World's	629
Luminescent Coatings	335
Machines, Finishing of Washing	112
Metal Degreasing, The Stabilization of Chlorinated Solvents for	448
Metal Finishing, Near Infra-Red and	389
Method, Coating by the Electric Spray	621
Military Applications for Organic Finishes	499
Modern Infra-Red Baking System, A	561
Near Infra-Red and Metal Finishing	389
Operators, Evaluating Spray	507
Ordnance Department Paint Developments	563
Organic Finishes, Military Applications for	499
Organic Finishing, Fire Protection for	566
Organic Finishing Materials, The Status of	439
Paint Brushes, Suggestions for Conserving	574
Paint Developments, Ordnance Department	563
Painting, Flame-Priming Steel for	395
Paint Spray Enclosures, World's Largest	629
Paint White for More Light	58
Patents	64, 162, 164, 173, 230, 278, 444, 514, 631, 632, 690

Protection for Organic Finishing, Fire	566
Questionnaire, A Dipping	627
Solvents for Metal Degreasing, The Stabilization of Chlorinated	448
Spray Enclosures, World's Largest Paint	629
Spray Method, Coating by the Electric	621
Spray Operators, Evaluating	507
Stabilization of Chlorinated Solvents for Metal Degreasing, The	448
Status of Organic Finishing Materials	439
Steel Containers, Finishing	169
Steel for Painting, Flame-Priming	395
Storing Finishing Material	276
Suggestions for Conserving Paint Brushes	574
Trucks, Finishing of Dairy	334
Warplanes, Finishing	681
Washing Machines, Finishing of	112
Washington, News from—	388, 438, 498, 560, 620, 680
White for More Light, Paint	58
World's Largest Paint Spray Enclosures	629

AUTHORS

Cleveland, Carleton. Finishing of Filters	687
Cleveland, Carleton. Finishing of Washing Machines	112
Cusack, Thomas P. Jr. Military Applications for Organic Finishes	499
Darrin, Marc. Anodic Treatment of Aluminum in the Chromic Acid Bath	106
Dinley, C. F. The Stabilization of Chlorinated Solvents for Metal Degreasing	448
Duvall, W. A. Finishing of Greyhound Coaches	163
Eberhardt, P. W. Fire Protection for Organic Finishing	681
Edwards, Junius D. Finishes for Aluminum Die Castings	220
Faulhaber, Frank V. Finishing Defense Products	228, 279, 339
Faulhaber, Frank V. Finishing Warplanes	681
Gallaher, E. B. Coated Abrasives—A Tool	51
Gifford, J. W. Finishing Steel Containers	169
Keskulla, A. E. Finishes for Aluminum Die Castings	220
Krupp, Paul H. Near Infra-Red and Metal Finishing	389

SHOP PROBLEMS

Aluminum Content	692
Adjusting Solids Content	623
Air Line, Oil in	227
Breakdown Test, Copper Sulfate	509
Content, Adjusting Solids	623
Copper Sulfate Breakdown Test	509
Cost of Solids	571
Enamel, Spangle Shows Thru One-Coat	56
Gun Pressures, On Spray	571
Japans as Substitute for Baking Enamels	509
Mica in Aluminum "Paints"	164
Oil in Air Line	227
"Paints", Mica in Aluminum	164
Pressures, On Spray Gun	571
Ratios, Thinning	508
Shellac Solvents	571
Solids, Cost of	571
Solids Content, Adjusting	623
Solvents, Shellac	571
Spangle Shows Thru One-Coat Enamel	56
Spray Gun Pressures, On	571
Substitute Thinners	61
Thinners, Substitute	61
Thinning Ratios	508

Remember Pearl Essence

The Selective Substitute for Metallic Finishes

GUNMETAL

NICKEL

BRASS

BRONZE



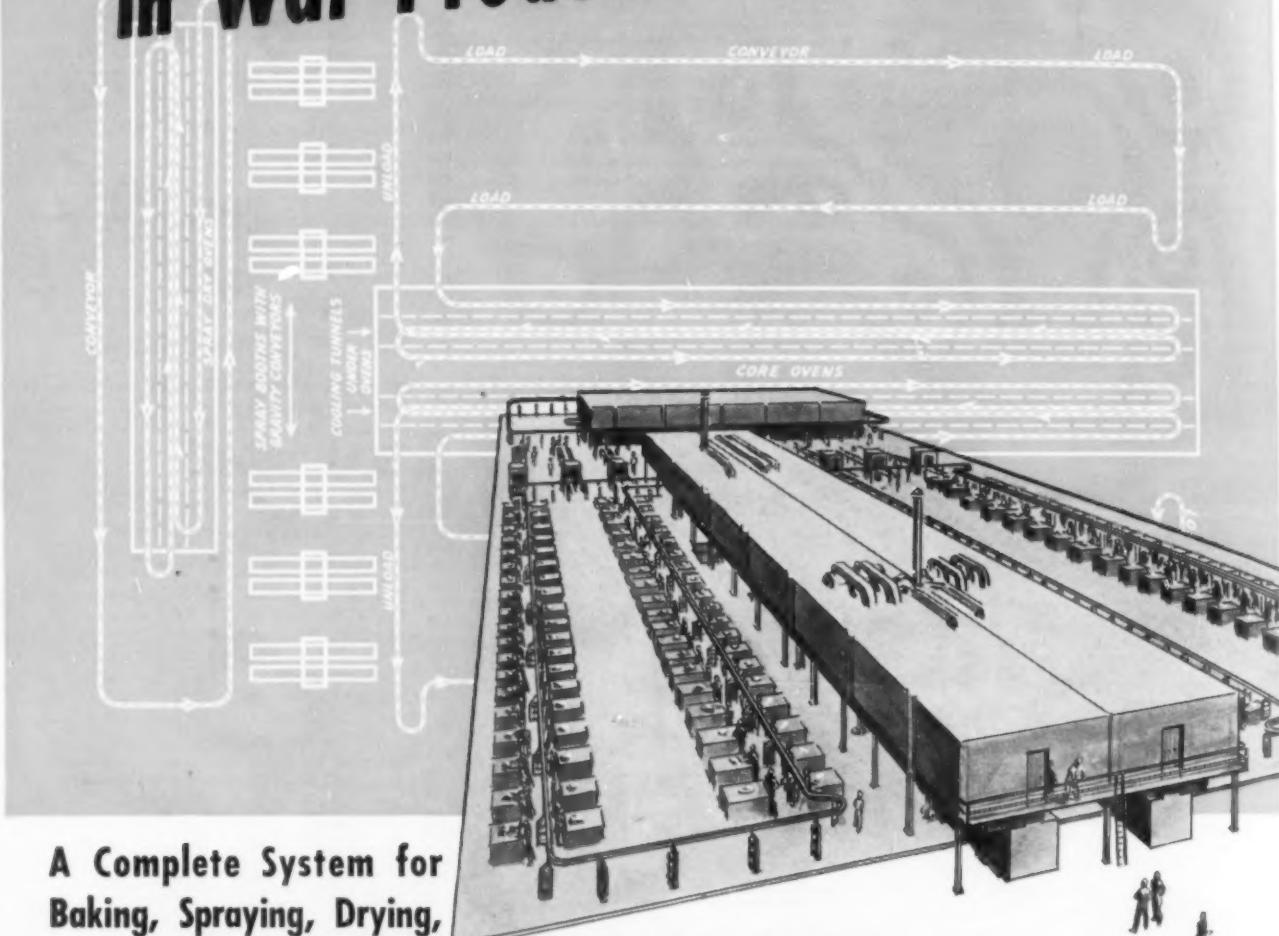
Available in Unlimited Quantities

THE MEARL CORPORATION

153 Waverly Place

New York, N. Y.

Another MAHON ACHIEVEMENT in War Production Equipment



A Complete System for Baking, Spraying, Drying, Core Moulds for Magnesium and Aluminum Castings

One of the largest core baking and finishing systems ever conceived has been developed by Mahon engineers for a foremost builder of aircraft engines. It makes possible the pouring of thousands of castings each day. The section pictured is but one of four compact units. Each unit is in reality two complete systems—having twin ovens, twin cooling tunnels, twin batteries of spray booths and twin drying ovens—through which the work from 8 lines of core-making machines, 20 to a line, continuously travels on a series of conveyor systems. Except for loading and unloading the conveyors, operation is entirely automatic. Method of transporting moulds, temperatures, ventilation, spray-painting of moulds, all have been carefully worked out to insure moulds emerging from final drying oven without breakage or loss en route.

THE R. C. MAHON COMPANY • DETROIT • CHICAGO

MAHON

Metal Cleaning Machines, Rust Proofing Machines, Hydro-Filter Spray Booths, Ovens of All Types, Filtered Air Supply Units, Hydro-Foam Dust Collectors—and Many Other Units of Special Production Equipment—including Complete Finishing Systems.

Let Mahon Engineers Help You!

The tremendous volume and speed-up of war production is constantly presenting new problems in the FINISHING of war products. If you have such a problem let Mahon engineers help you. Manufacturers are finding Mahon's thorough understanding of modern finishing methods extremely invaluable in meeting constantly increasing production schedules—with constantly decreasing manpower.

AL
CL
Amer
Pumice
Mexico
deposit
not vol
ically,
now u
the co
Standar
Silica
Alumina
Iron Oxide
Titanium
Calcium
Magnesia
Soda
Potash
Sulfuric
Acid

D
THE P
GR

VALENCIA PUMICE
CLAIMS PROVED!



America's Own Valencia Pumice, mined at Grants, New Mexico from an inexhaustible deposit is a true pumice stone and not volcanic ash. Chemically and physically, it is equal in every respect to the now unobtainable Italian pumice. Note the comparison making Valencia The Standard of American Pumice.

	American Pulverized Per Cent	Italian Select Per Cent
Silica	72.90	73.24
Alumina	11.28	10.61
Iron Oxide	.86	1.57
Titanium Oxide	.06	.10
Calcium Oxide	.80	1.10
Magnesium Oxide	.36	.40
Soda	3.64	3.03
Potash	4.38	5.58
Sulfuric Anhydride	.03	.05
Loss on ignition	5.20	4.04

- The Standard of American Pumice
- Controlled High Quality
- Consistent Uniformity

Complete screen analyses, weight and color tests are made hourly to insure uniformity and the highest quality.

Valencia Pumice

To maintain its high standard, Valencia Pumice is tested hourly and our output of over five tons per hour is rigidly under control for particle size, purity, weight and color. Valencia Pumice's high quality is consistently uniform and always available.

2458

Distributors of
THE PUMICE CORPORATION

of
AMERICA
NEW MEXICO

WHITTAKER, CLARK & DANIELS, INC.

260 WEST BROADWAY • NEW YORK CITY

Warehouses: Detroit, Michigan and South Kearny, N. J.

THIS "BABY" GETS 17 BATHS



That Help **SPEED-UP** Production
and **INCREASE** Output!

This is a cal. .50 machine gun cartridge designed to shred aircraft armor, strafe landing barge personnel, find the vitals of reconnaissance cars and scythe down advancing infantry.

It will take a lot of these to win the Victory and it takes over 70 operations to make each one... to form and assemble its case, its primer with cup, pellet and anvil, its bullet with point, core and jacket. Between these and other operations are 17 cleaning jobs... not just cleaning to wash away dirt and metal chips but also, to remove a variety of drawing, forming and cutting oils, compounds and greases. The cleaning has to be THOROUGH. It has to be FAST.

This essential production degreasing is a typical example of Oakite War-Time Service to Ordnance Munitions makers. For many we have solved other difficult problems, in some cases setting up over-all individual plant techniques of specialized time-and-man-power-saving cleaning operations.

CAN YOU USE THIS VALUABLE FREE SERVICE?

If, in your plant, there is a cleaning operation suspected of being less thorough than it should be or of taking even a few more seconds time than necessary, let a nearby Oakite Technical Service Representative take a helpful look at the situation. His FREE services... a contribution to the Nation's war effort... are yours for the asking. Write today!

A FEW OF MANY CASES WHERE OAKITE MATERIALS AND METHODS ARE BEING USED TO SPEED-UP PRODUCTION OF ORDNANCE AND MUNITIONS

STEEL SHELLS: Removing machining oils, soluble cutting and grinding oils, graphite, heat treat scale, shop dirt and smut. Neutralizing after scale removal.

Rust-proofing after boring, cold nosing, scale removal, grinding and cleaning. Cleaning before re-loading, removing acid-proof paint, red lead, oxide, grease and rust.

STEEL DEPTH BOMBS: Removing anti-rust, blanking oil, light rust and welding scale.

TORPEDO CASINGS: Removing quenching oil and heat treat scale. Rust-proofing prior to shipping for assembly.

STEEL BURSTER TUBES: Removing slushing oil and rust.

BRASS BURSTER CASES AND FUSE PARTS: Removing lard oil, metal chips and discoloration.

BRASS CARTRIDGE CASES: Forming with Oakite Special Drawing Compound. Removing drawing compound, heat treat scale and pickling acids.

ALUMINUM BOOSTER CAPS: Removing lard oil.

STEEL INCENDIARY BOMB CASES: Removing silver soldering flux, oxides, heat scale, rust and discoloration.

CARTRIDGES: Removing blanking paste, lard oil, soap tallow, and soap from brass cases and bullet jackets.

GUN BARRELS: Removing burned on powder after test firing.

LANDING FIELD STEEL MATS: Stamping steel sheets with Oakite Special Drawing Compound.

STEEL BOOSTER CAPS: Reverse Current Degreasing before zinc plating.

RIFLE PARTS: Electrocleaning Method of removing oil and burned powder after practice firing.

ANTI-AIRCRAFT SHELL CASES: Removing machining oil, castor oil, soap and drawing compound.

Manufactured only by

OAKITE PRODUCTS, INC., 24 Thames Street, NEW YORK, N.Y.

Representatives in All Principal Cities of the United States and Canada

OAKITE
MATERIALS...METHODS...SERVICE



CLEANING
FOR EVERY CLEANING REQUIREMENT

EBONOL

Blackening PROCESSES

REG. U. S. PAT. OFF.

IN WAR PRODUCTION



EBONOL "S"
for IRON
and STEEL

EBONOL "C"
for COPPER
BRONZE
BRASS

EBONOL "Z"
for
ZINC ALLOYS
ZINC COATINGS

EBONOL BLACKENING PROCESSES are specified and are being used on many types of war goods where tough, wear resisting black finishes on metals are required. All solutions are easy to operate. Large stocks of salts are available for quick delivery.

Enthon's experienced chemical engineers are ready to give technical advice and service.

AIRPLANE
PARTS
TANKS-GUNS

INSTRUMENTS
TOOLS
MACHINES

Chicago Representative:
GEORGE A. STUTZ MFG. CO.
1641 Carroll Ave., Chicago

Detroit Representative:
FREDERIC B. STEVENS, Inc.
Larned & 3rd Sts., Detroit

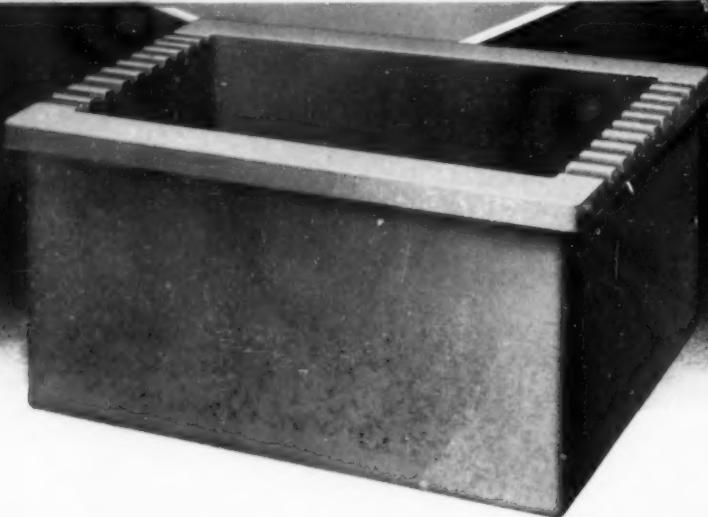
Samples Processed Promptly

THE ENTHON CO.
NEW HAVEN, CONN.

Chemical stoneware tanks meet the acid test

GENERAL CERAMICS COMPANY

CHEMICAL STONEWARE



General Ceramics Chemical Stoneware tanks are not merely acid resistant — they are acid proof throughout — the body as well as the glazed surface is built to withstand acids and concentrated chemicals.

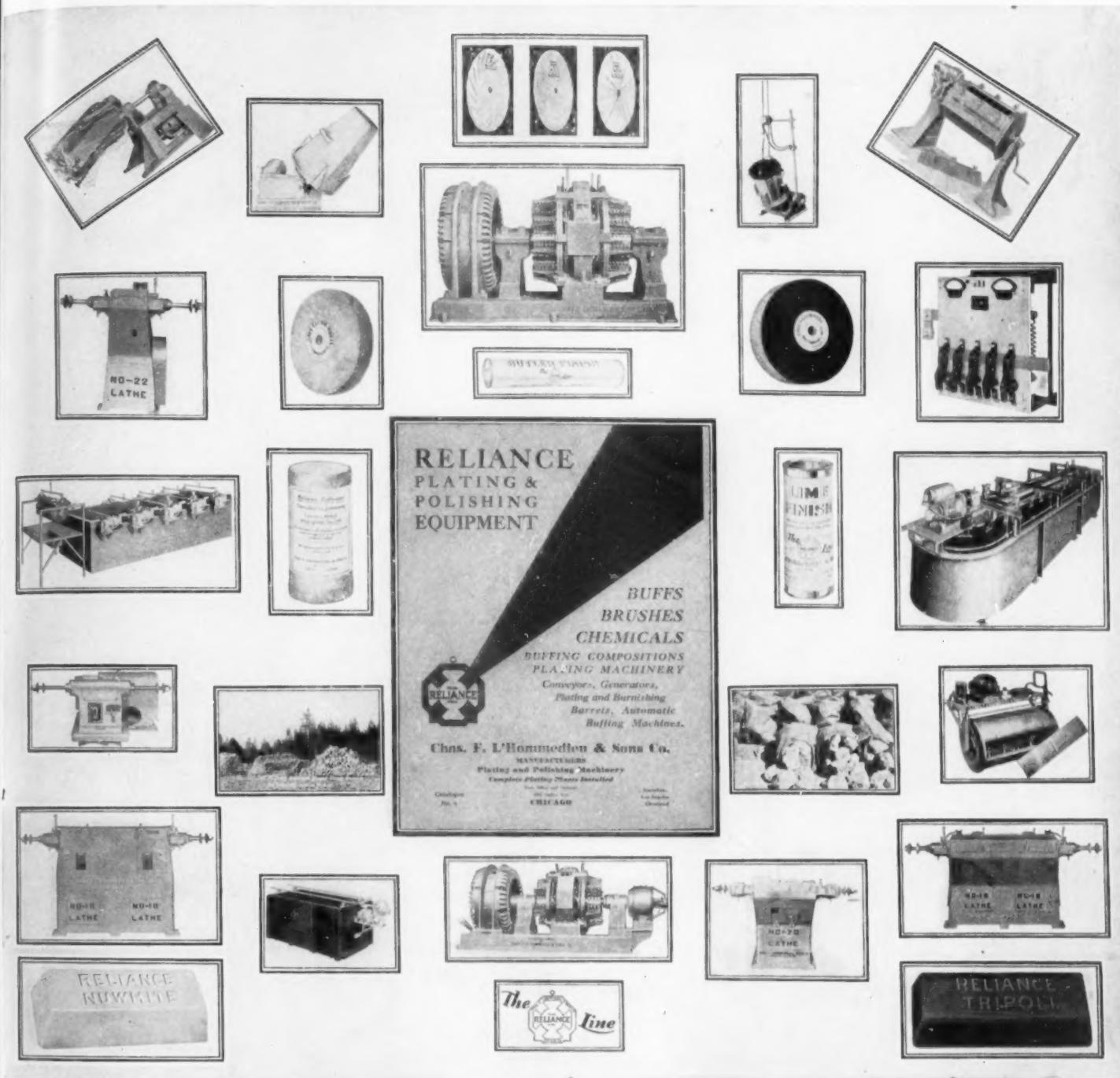
Stoneware tanks are seamless and consequently leak proof. The glazed surface makes them easy to clean.

More and more stoneware tanks are replacing process and storage con-

ainers of hard-to-get materials wherever service conditions demand extraordinary resistance to corrosion.



PLATING & POLISHING EQUIPMENT



Chas. F. L'Hommedieu & Sons Co.
MANUFACTURERS of
Plating and Polishing Machinery
Complete Plating Plants Installed

C. B. Little
Newark, N. J.

W. R. Shields
Detroit, Mich.

O. M. Shoe
Philadelphia, Pa.

Gen. Office and Factory:
4521 Ogden Ave.

CHICAGO

Branches:
Cleveland
and
Los Angeles

DU-LITE
protects
vital bearings
in war plane
engines

THOUSANDS of precision built engines are coming off the production lines of America's famous aircraft engine manufacturers—a marvel of compact power and dependability. The performance of these engines is improved by the use of Du-Lite finished parts.

Du-Lite Black Oxide provides a protective finish for wrist pins, bearings, and valves in airplane, marine, and automotive engines. It is durable, rust-resisting and attractive.

Du-Lite processing rounds off microscopic roughness present on even highly polished bearing surfaces and the resulting oxide layer absorbs and holds oil. This combination aids lubrication, reduces friction and prevents galling or scoring of closely fitted bearings.

Investigate the possibilities of Du-Lite Finish for your steel products. Write for particulars.

DU-LITE CHEMICAL CORP.
MIDDLETOWN, CONNECTICUT

PENNSALT CLEANER

Reg. U. S. Pat. Off.



HELPS TO SHOE UNCLE SAM'S WAR HORSES

On U. S. Army tanks, the rims of the "bogie wheels" are brass-plated before their rubber "shoes" are put on. If the brass-plating is unsatisfactory, a poor rubber-coating job results.

A manufacturer had the problem of stripping unsatisfactory brass-plating from the tank rims. He was using a boiling chromic acid bath, but the job took an hour and entailed considerable evaporation of the acid. Since chromic acid is on priority, he wanted to speed up the operation in order to conserve this critical material.

A Penn Salt representative saw that a Pennsalt Cleaner could help. Result? The Pennsalt Cleaner stripped the brass in one-fourth

the time formerly required, and cut down the time in chromic acid to *one-fifteenth*, thus effecting a substantial reduction in the chromic acid lost by evaporation. It did everything the customer needed, from a brass-removing standpoint, and subsequent re-plating of the rims was entirely satisfactory.

This was a tough problem to

solve, but Penn Salt engineering, backed by the complete line of Pennsalt Cleaners, was equal to the task. In the family of Pennsalt Cleaners, there is at least one which will facilitate some metal cleaning operation in your plant. Let the Penn Salt technical staff help you with your problem. Phone or write to Pennsalt Cleaner Division, Dept. MF.

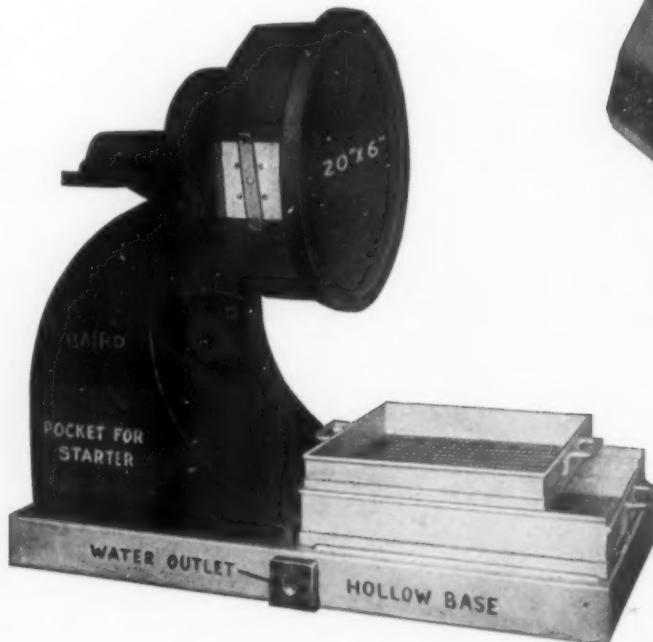
**PENNSYLVANIA SALT
MANUFACTURING COMPANY**
Chemicals
1000 WIDENER BUILDING, PHILADELPHIA, PA.
NEW YORK • CHICAGO • ST. LOUIS • PITTSBURGH • WYANDOTTE • TACOMA



HORIZONTAL BARRELS



TILTING BALL BURNISHING BARRELS



This shows a High and Narrow Type of Barrel mounted on "BAIRD" Model D. or Pedestal Type Motor driven Oblique Tilting Tumbler.

As shown the barrel was lined for use for burnishing with hardened steel balls.

These barrels may be of any suitable material depending on the job. Cast iron or fabricated steel unlined or lined with rubber etc. for rolling in abrasives.

Made in 20" dia. x 6" for No. 1 Tumbler
Made in 24" dia. x 8" for No. 2 Tumbler



This shows the side of a No. 1 BAIRD Model D. Single Oblique Tilting Tumbler with a No. 22 Sheet Steel Polygonal Barrel and with an Automatic Electrical Tilting Device.

This device AFFORDS GREATEST SAFETY—LEAST LABOR—LEAST FLOOR SPACE—LEAST AMOUNT OF DISTANCE TO MOVE WORK in USING the tumbling barrels. SAVES TIME AND FLOOR SPACE.

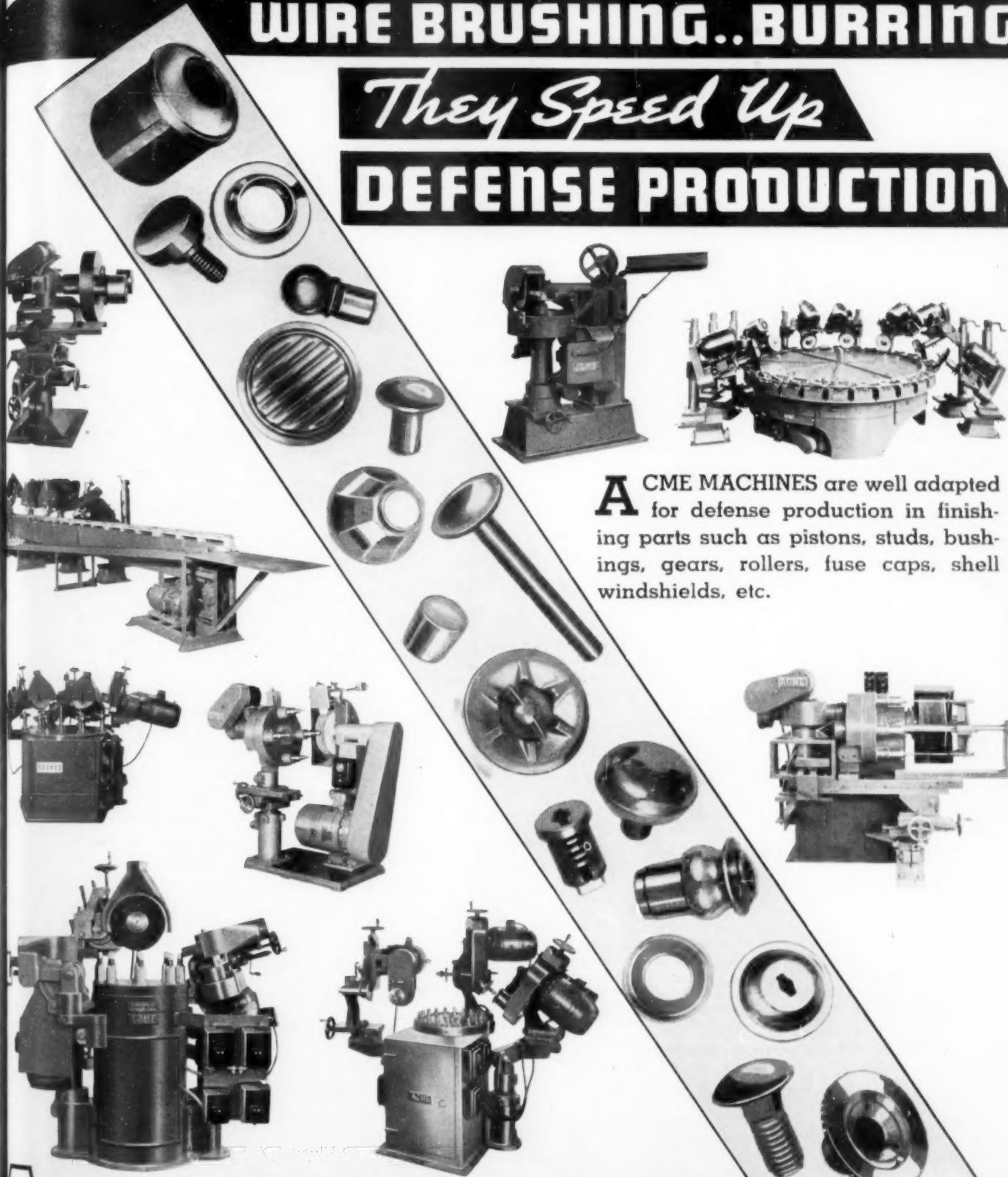
When tumbling questions come up "ASK BAIRD ABOUT IT"

THE BAIRD MACHINE COMPANY
BRIDGEPORT, CONNECTICUT

Since 1846 specializing in high production machinery for articles of wire and for ribbon metal. Also machines to turn, bore, etc., castings, forgings, etc., up to 10½" diameter.

ACME *Automatics* for POLISHING..BUFFING.. WIRE BRUSHING..BURRING

They Speed Up
DEFENSE PRODUCTION



A CME MACHINES are well adapted for defense production in finishing parts such as pistons, studs, bushings, gears, rollers, fuse caps, shell windshields, etc.

ACME Manufacturing Co.

1643 HOWARD ST. • DETROIT, MICH.

Builders OF AUTOMATIC POLISHING AND BUFFING MACHINES FOR OVER 25 YEARS



The eyes of all America are upon the United States Treasury Roll Honor appears in the Payroll Savings News. For copy write War Savings Staff, Treasury Department, Washington, D. C.

HOW TO "TOP THAT 10% BY NEW YEAR'S"

Out of the 13 labor-management conferences sponsored by the National Committee for Payroll Savings and conducted by the Treasury Department throughout the Nation has come this formula for reaching the 10% of gross payroll War Bond objective:

1. Decide to get 10%. It has been the Treasury experience wherever management and labor have gotten together and decided the job could be done, the job was done.
2. Get a committee of labor and management to work out details for solicitation.
 - a. They, in turn, will appoint captain-leaders or chairmen who will be responsible for actual solicitation of no more than 10 workers.
 - b. A card should be prepared for each and every worker with his name on it.
 - c. An estimate should be made of the possible amount each worker can set aside so that an "over-all" of 10% is achieved. Some may not be able to set aside 10%, others can save more.
3. Set aside a date to start the drive.
4. There should be little or no time between the announcement of the drive and the drive itself.

The drive should last not over 1 week.
5. The opening of the drive may be through a talk, a rally, or just a plain announcement in each department.
6. Schedule competition between departments; show progress charts daily.
7. Set as a goal the Treasury flag with a "T."

AS of today, more than 20,000 firms of all sizes have reached the "Honor Roll" goal of at least 10% of the gross payroll in War Bonds. This is a glorious testimony to the voluntary American way of facing emergencies.

But there is still more to be done. By January 1st, 1943, the Treasury hopes to raise participation from the present total of around 20,000,000 employees investing an average of 8% of earnings to over 30,000,000 investing an average of at least 10% of earnings in War Bonds.

You are urged to set your own sights accordingly and to do all in your power to start the new year on the Roll of Honor, to give War Bonds for bonuses, and to purchase up to the limit, both personally and as a company, of Series F and G Bonds. (Remember that the new limitation of purchases of F and G Bonds in any one calendar year has been increased from \$50,000 to \$100,000.)

TIME IS SHORT. Our country is counting on you to—

**"TOP THAT 10%
BY NEW YEAR'S"**



Save with
War Savings Bonds

This space is a Contribution to America's All-Out War Effort by Metal Finishing.

3 WAYS STEVENS can help speed up your war production

Better Burrng and Buffing Compositions

Laboratory for Technical Research

Service for the Industry

For buffing and burring on parts for Uncle Sam's tools of war, Stevens Compounds give excellent results. They will help in meeting rigid inspections. They're fast-cutting and will save many time-consuming and costly operations.

Our Laboratory is complete. Trained technicians, through research and experiments, are continually seeking new materials and methods for producing better—quicker results. Their fullest cooperation—for solving difficult problems—is yours for the asking.

Stevens men, through long years of training in the fundamentals of the industry, are fully capable of coming into your plant—seeing first hand what your problems are and recommending the right materials for any specific job.

FOR DEBURRING OPERATIONS

On Steel Parts

When deburring on Buffs, Stevens Greaseless Compound will give best all 'round results. If the deburring is being done on a Tampico Wheel, use Stevens Tampico Composition.

On Non-Ferrous Parts

On all non-ferrous operations you will find Stevens Tripoli Compositions the highest quality product for this type of work.

FOR BUFFING OPERATIONS

On Steel Parts

To remove tool marks, grinding lines, pits, etc., Stevens Greaseless Compound cuts fast—leaving work clean, and brings up a "satin" finish. Stevens Steel Composition cuts fast and brings up a high luster.

On Non-Ferrous Parts

Stevens Tripoli Compositions work fast, bring up a high luster and they're easy to clean.

On Plastics

Use Stevens Plasticut as a cutting compound and Stevens Plasticolor as a coloring compound. If the work is done on black or dark colored articles use Stevens No. 16 Black.

Why not try these three ways on your next job? We will gladly send samples on any of our products if you will tell us what specific job you're doing.

FREDERIC B. STEVENS, INC.
DETROIT, MICHIGAN
New Haven Buffalo Cleveland Indianapolis Windsor Toronto
"EVERYTHING FOR THE POLISHING AND PLATING PLANT"

HOW TO STOP SHORT CIRCUITS

and get the most out of
your Anodizing Solutions!

. . . with a lattice of
UNICHROME*
RESIST MATERIAL
— easily made in your own shop

Even though your anodizing tanks are crowded to overcapacity . . . there's no need to risk having work touch the tank and cause a short circuit. A lattice of Unichrome Resist Material will guard against this hazard permanently . . . without either affecting the solutions or being affected by them.

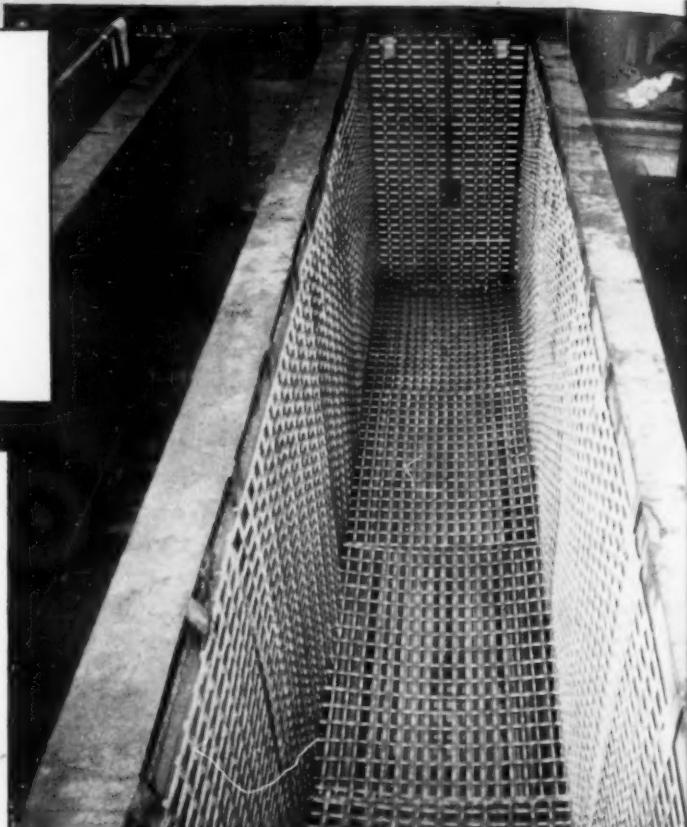
Here are the problems

Solid insulating material, of course, is not suitable since the tank must function as the cathode. Lattices of wood, rubber and similar materials have been tried but they were all attacked by the solution as well as seriously contaminating it . . . sometimes making it inoperative within a week, due to compounds released into the bath. Valuable materials were wasted . . . vital operating time lost.

Here is your answer

For the first time, a material that combines *all* the properties required for effective tank insulation . . . Unichrome Resist Sheet is:—Insoluble in the chromic or sulphuric acid concentrations used; withstands temperatures beyond 125°F., without sagging or deforming; tough and pliable at normal temperatures, yet easily fabricated into the required shapes; discharges no harmful substances into the solutions.

Installations insulated with Unichrome Resist Material have been in successful operation for more than 2 years. Typical of the possible savings in solution is the comparative cost chart kept by one large war contractor.



	WOOD LATTICE	UNICHROME LATTICE
Initial cost of material and labor	\$ 250	\$400
Installation cost	75	75
Chromic Acid consumed in bath make-ups, 1½ years	2,660	840
	\$2,985	\$1,315

These figures show a total saving of \$1,670 in 1½ years for each tank! Can you afford to overlook similar opportunities in your plant?

Leaflet shows how lattice is made

We will gladly mail a helpful leaflet which describes and illustrates how lattice work of Unichrome Resist Material is made by large contractors of anodizing work . . . how it can be quickly and easily assembled to fit the tanks in your shop. A copy of Leaflet #R is yours for the asking.

UNITED CHROMIUM
INCORPORATED

51 East 42nd Street, New York, N. Y.

Waterbury, Conn.

Detroit, Mich.

DUPONT HELPS for WARTIME PLATING PROBLEMS



HERE is plating literature, important right now. It contains, in clear, concise form, newest details of current electroplating practice—information gained by Du Pont throughout years of research and practical experience. These works of reference you should not be without, particularly if you are faced with unusual production problems.

The present value of this material to you cannot be measured, yet those of your choice are free. Du Pont wants you to have this literature. Study the list, check the coupon and send—for these proven helps.

Gentlemen:

Please send books or information checked below.

- Electroplating Chemicals, Processes, Materials
- Electrodeposition of Gold and Silver
- High Speed Copper Electroplating Process
- Electrotinning
- Bright Zinc
- Sulfamate Lead Plating
- Heavy Silver Plating
- Hull and Strauss Tests for Zinc, Cadmium, Tin and Copper
- Operating Instructions for "Zin-O-Lyte," the Zinc Molybdenum Process for Brilliant Zinc
- "Moly-Black" for Production of Deep-Black, High-Luster Deposits
- "CadaLyte"—the Complete Salt for Cadmium Plating Surfaces
- "CadaLyte" Bright Dip for Improved Cadmium Plated Surfaces

NAME _____

COMPANY _____

ADDRESS _____

ELECTROPLATING DIVISION
E. I. DU PONT DE NEMOURS & CO. (INC.)
WILMINGTON, DELAWARE

**Here's A Wonderful Tank
Lining That Can Be Applied
In Your Own Shop**

Provides a lasting lining that is unaffected by acids or caustics and will not crack, scale or peel. Can be used to protect wood or steel tanks. Is easily applied, does not require any preliminary preparation other than the surface being lined be reasonably clean. Rubberite is considered one of the most efficient acid-proof linings on the market and cannot be recommended too highly wherever equipment is used at room temperature. Sold at ceiling price of .16 cents per pound in large pail containing twenty-five pounds. Two pounds of rubberite covers one square foot of surface $\frac{1}{4}$ inch thick. Send order to-day; fill out coupon below.

B E L K E M A N U F A C T U R I N G C O M P A N Y
947 N O R T H C I C E R O A V E N U E C H I C A G O , I L L I N O I S

Ship Pails of Belké Rubberite Tank Lining to-day.

FIRM NAME

ADDRESS

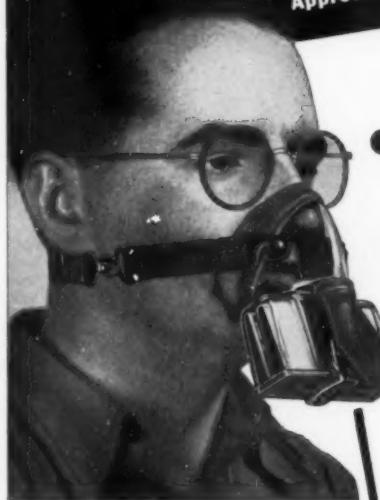
CITY

STATE

The Belke logo is a black and white graphic. It features the word "BELKE" in large, bold, serif capital letters, centered within an oval-shaped border. Below the main title, the address "947 N. CICERO AVE., CHICAGO, U.S.A." is printed in a smaller, all-caps, sans-serif font.

- THE SAME ACCLAIMED DESIGN ...
- NOW AN EVEN FINER DUST RESPIRATOR

the M·S·A *Clear-Vue* PLASTIC MODEL DUSTFOE RESPIRATOR



- ALL-PLASTIC FACEPIECE AND FILTER CONTAINER
- TRANSPARENT— YOU CAN CHECK FILTER, SEAL, etc., WITHOUT DISASSEMBLY
- LIGHTWEIGHT— COMFORTABLE— COMPACT
- ATTRACTIVE— THE RESPIRATOR YOU'LL LIKE TO WEAR

Now—the *transparent* Clear-Vue Dustfloe Respirator, transformed by modern engineering from metal to strong, clear plastic—retaining every design feature of the record-breaking original model!!

The Clear-Vue Dustfoe lets you see at a glance the filter condition; lets you check the seal, filter type adjustment, and state of cleanliness of the respirator without disassembly. Compact, durable, odorless, non-corrosive, non-conductive of electricity or heat, the Clear-Vue Dustfoe maintains all its famous comfort and approved All-Dust protection.

Self-adjusting, cushioned facepiece, with form-molded facecushion—perfect-seal filter container—Army-type exhalation valve—these and many other Clear-Vue Dustfoe features are detailed in new Bulletin No. CM-6. Write for your copy—and ask for an actual demonstration on your own jobs!



MINE SAFETY APPLIANCES CO.
BRADDOCK, THOMAS AND MEADE STREETS, PITTSBURGH, PA.

District Representatives in Principal Cities

MUST YOU CHANGE FROM CADMIUM TO ZINC?

If you are one of the plants facing the necessity of changing to zinc plating from your regular Cadmium plating, let Udylite's years of experience guide you.

Udylite's electrochemists will gladly supply you with the information you need.

The Udylite zinc plating process is known throughout the country for its high efficiency and excellent performance.

If shortages and changed specifications dictate that you must find a worthy substitute for Cadmium, we sincerely recommend the Udylite Zinc Process for the job.

Solution, materials and anodes are available for immediate shipment from stock. No special allocation forms are necessary—only your priority certificate with end use.

[Write for Technical Bulletin Z-1. It gives up-to-the-minute information] on the change-over from cadmium to zinc.

THE UDYLITE CORPORATION

1651 E. Grand Blvd., Detroit, Mich.

Cleveland
4408 Carnegie Ave.

Long Island City, N. Y.
11-16, 44th Drive

Chicago
1943 Walnut Street

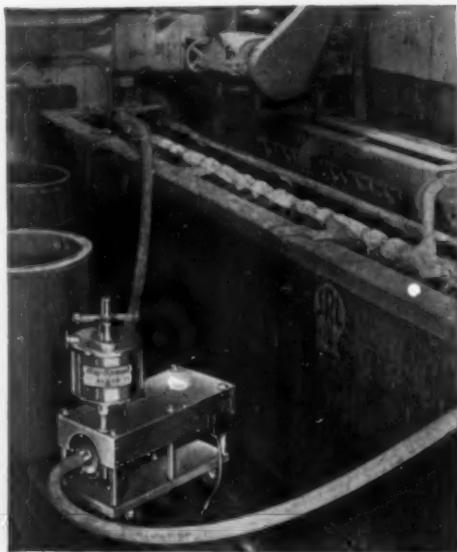
Mr. Plater, see what I'm doing to help You get Better Plating



This is one of my filter discs. It is covered with dirt, sludge and impurities I have filtered from your plating solutions.

You know that this dirt and the impurities constantly building up in your solutions cause you plenty trouble. Poor finishes—Rejects that must be plated again—and your Production slowed down.

ALSOP "SEALED DISC" FILTERS



I'm here to change all these things. I'll keep your solutions clean as a whistle, which will produce finer plated finishes, speed up your production, and cut down rejects to a minimum, so help me.

I'll also save time and labor. Use me continuously on all your tanks, and there will be no stopping work to clean tanks. And here is something worth knowing—I am positively leak-proof, so will not waste your valuable solutions.

PLATERS—If you would like to be convinced of these advantages, ask your plating supply man or call in one of our filtration experts.

ALSOP ENGINEERING CORP.
20 Bright Street **Milldale, Conn.**

Now that Platinum and Rhodium are out for the duration, investigate



The New and Perfected
PALLADIUM PLATING BATH*

PLATE with

PALLITE PALLADIUM PLATING SOLUTION

to get the brilliant Non-Tarnishing Plate.

To be applied on low carbon steel, an undercoating of silver (half-thousandths thick), must be applied before plating with PALLITE. This will be necessary to make steel rust-proof.



* Pat. Pending

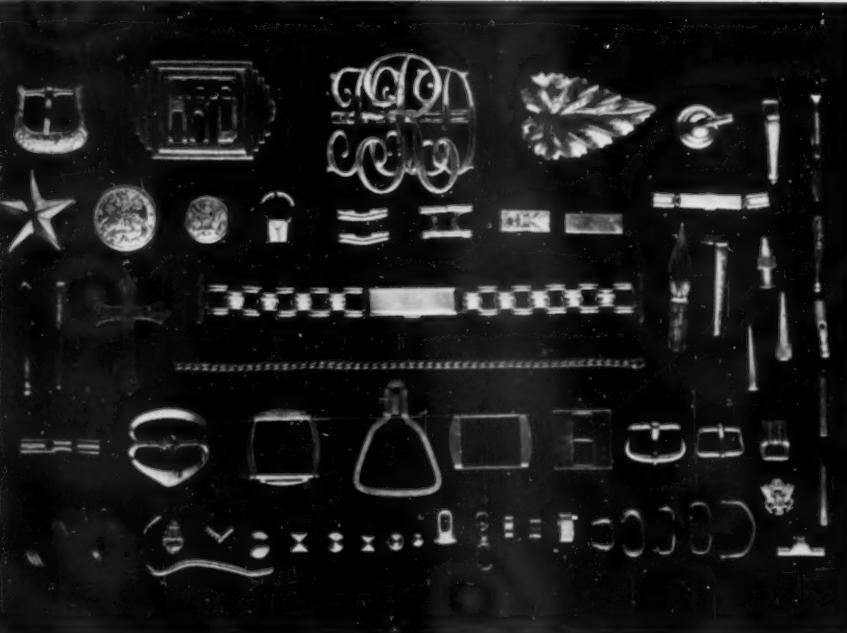
PRECIMET LABORATORIES

Division of GEORGE C. LAMBROS - Refiners and Smelters

RESEARCH AND DEVELOPMENT ENGINEERS IN PRECIOUS METALS

64 FULTON STREET

NEW YORK



SPECTRO-PROCESS

A new process for plating Palladium, Gold, and Silver on small parts:

By the gross, pounds or tons.

Acid proof, tarnish proof, and rust proof plates.

Steel parts plated to a Jewelry finish.

We only plate Palladium, Gold and Silver.

We only plate small parts.

Palladium (a good metal to get familiar with now) is the only hard white plate left without government restrictions and is a practical substitute for nickel, chrome and white gold.

SPECTRANOME

8 EAST 12TH STREET • NEW YORK CITY

GRAMERCY 3-1958

ADVANCE CUP WHEEL

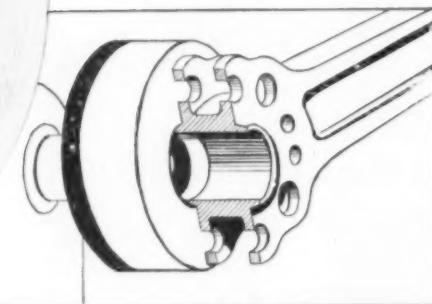
Reaches those "Hard-to-Get" places



Photograph above illustrates the ADVANCE CUP WHEEL in the following dimensions:

10" Outside Dia. $3\frac{3}{4}$ " face x $\frac{1}{4}$ " Fibre spindle hole. With countersunk relief hole $4\frac{1}{2}$ " Dia. x $\frac{1}{4}$ " deep.

Laminated wood backing $\frac{3}{4}$ " thick reinforced front and back with $\frac{3}{4}$ " thick fibre flanges.



For polishing Master Connecting rods, gears and parts of similar character.

The mechanical drawing illustrates the position of a master connecting rod being polished against the side of the ADVANCE CUP WHEEL.

The special construction of the ADVANCE CUP WHEEL, permits polishing the flat side of the Master connecting rod, or gear hubs, in one operation without "dragging out" the holes and at the same time imparting a beautiful "sunray" finish.

Tests have proven that, by the use of the ADVANCE CUP WHEELS production has increased as high as ten to one.

"TAILOR MADE" to fit your requirements.

ADVANCE POLISHING WHEELS, INC.
844 WEST 49th PLACE CHICAGO, ILLINOIS

Keystone METAL GRAPHITE BRUSHES
lower maintenance costs



Keystone Brushes are scientifically constructed to give longer brush life—thus eliminating costly production delays due to "shut downs". Because of their high current carrying capacity and low friction characteristics they are ideal for use in low voltage generators.

There is a Keystone Metal-Graphite Brush for all standard plating generators, and we will gladly recommend the type best suited for your requirements. Write today for complete information.

Manufacturers of precision moulded products

The shunts are moulded directly into Keystone Brushes. (See illustration showing cut away view of brush.)

KEYSTONE CARBON CO., INC., St. Marys, Pa.

**100,000 C. F. M. in 1940
increased to
3,650,000 C. F. M. in 1942**

*Another Proof of the
Superiority of*

KIRK & BLUM Air Handling Systems

Because of the success of the fume control system (one of which is pictured above) installed for this company in 1940, Kirk & Blum was again selected to engineer and install the air handling systems in its new war production plant.

These systems for heating the plant in winter and for supplying fresh air in summer will handle 3,650,000 C.F.M.

Kirk & Blum Engineers are at your service. Consult them today.



In this modern plant, heat, dust and fumes from gas welding operations are eliminated. Working conditions improved and workers' health safe-guarded.

Send for any of the following booklets:

"Dust Collecting Systems in the Metal Industries."

"Fan Systems for Various Industries."

"Industrial Ovens."

"Blower Systems for Wood-working Plants."

"Cooling Systems for the Glass Industry."

"Data on Kirk & Blum Production Facilities."

THE KIRK & BLUM MANUFACTURING CO.
AN ORGANIZATION OF ENGINEERS AND MECHANICS
2859 SPRING GROVE AVE. CINCINNATI, OHIO



Christmas Greetings!

AS another year draws to a close, we extend to you our best wishes for the Christmas season and for the New Year.

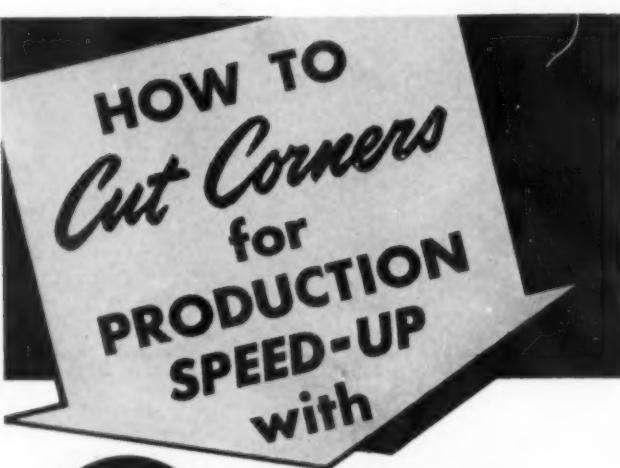
We are appreciative of your friendship and of the patronage you have given us. We pledge our best efforts to make MATCHLESS PRODUCTS and MATCHLESS SERVICE of even greater value to you.

As the New Year advances may it bring you an increasing measure of prosperity and happiness.

THE MATCHLESS METAL POLISH CO.

840 W. 49th Pl., Chicago, Ill.

726 Bloomfield Ave., Glen Ridge, N. J.



SPECIALIZED Industrial Chemical COMPOUNDS

Turco Products, Inc., manufactures more than 225 Specialized Industrial Chemical Compounds which have been designed for production speed-up on almost every operation in the plant. In preparation for anodizing or chromatizing; for phosphatizing; for spot welding and weld masking; for degreasing and decarbonizing of machine parts and all of the operations listed on the coupon below, there is a thoroughly tested Turco material. Ask us for technical information. Call on your local Turco Field Service Engineer for free consultation. For ideas and production short cuts, check and mail coupon below. No obligation.

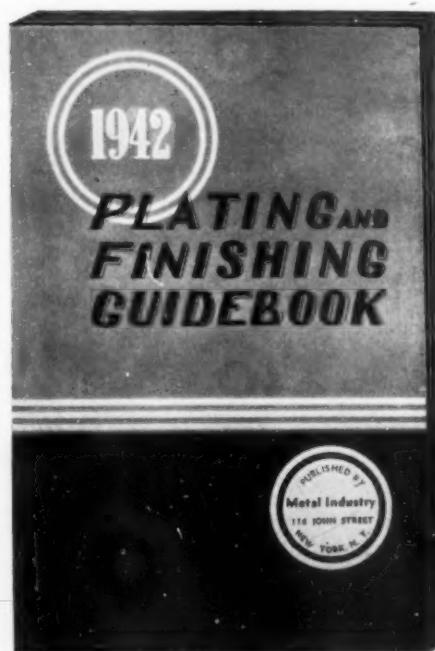
MAIL THIS COUPON	
TURCO PRODUCTS, INC.	
6135 S. Central Ave., Los Angeles 27-122	
Please send FREE literature on materials, methods and procedure pertaining to the operations checked below:	
NAME _____	TITLE _____
FIRM _____	
ADDRESS _____	STATE _____
I'M INTERESTED IN THE OPERATIONS WHICH I HAVE CHECKED (✓):	
<input type="checkbox"/> Acid Pickling <input type="checkbox"/> General Plant Maintenance <input type="checkbox"/> Aluminum Spot Welding <input type="checkbox"/> Hot Immersion Cleaning <input type="checkbox"/> Anodizing <input type="checkbox"/> Magnesium Processing <input type="checkbox"/> Cadmium Plating <input type="checkbox"/> Paint Camouflage Cleaning <input type="checkbox"/> Chemical Vapor Cleaning <input type="checkbox"/> Paint Department Maintenance <input type="checkbox"/> Chromatizing <input type="checkbox"/> Paint Stripping <input type="checkbox"/> Cleaning Metals Before Processing <input type="checkbox"/> Phosphatizing <input type="checkbox"/> Cleaning Prior to Plating <input type="checkbox"/> Scale Removal and Control <input type="checkbox"/> Cold Immersion Cleaning <input type="checkbox"/> Stainless Steel Processing <input type="checkbox"/> Cold Spray Cleaning <input type="checkbox"/> Steam Boiler Maintenance <input type="checkbox"/> Floor Maintenance <input type="checkbox"/> Glass Cleaning	

TURCO PRODUCTS, INC.

LOS ANGELES • SAN FRANCISCO • CHICAGO
HEAD OFFICE: 6135 So. Central Ave., Los Angeles
Sales and Service Representatives and Warehouse Stocks in All Principal Cities

Factories in Los Angeles and Chicago

FOR SALE PLATING and FINISHING GUIDEBOOKS



25c Per Copy

•
A limited number of
1941
PLATING and FINISHING
GUIDEBOOKS
Price: \$1.00 Per Copy

•
Book Orders Payable in Advance

METAL FINISHING

11 W. 42ND ST.

NEW YORK

DC Power

*for Plating • Anodizing • Cleaning
Electropolishing • Deplating • Electrolytic
refining and recovery • etcetera*

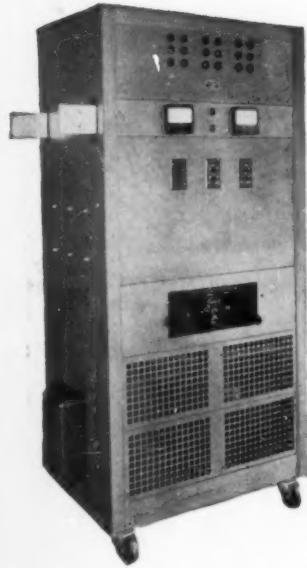
*Now . . . you can have a Direct-Current power
source built to meet your requirements.*

*Designed . . . to match any AC power
supply—single, two or three phase, any voltage from
110 to 550 volts, any frequency from 25 to 60 cycles.*

to supply any DC voltage—6 to 600 volts.

to supply any current—25 to 10000 amperes.

*in whichever form is best—unit, bank, full remote,
semi-remote, current-metered, time-controlled . . .*



This is one example of the
more than 70 types of DC
power sources built to cus-
tomers' requirements.

*Built . . . to provide unlimited life, high
efficiency, negligible maintenance, unity power
factor . . .*

*to operate quietly, to start and stop instantan-
eously under full load . . .*

*for minimum floor space, simple installation, easy
wiring . . .*

*to operate simply, and to protect itself against
accidents and mishandling . . .*

*Engineered . . . with all the skill of a
company specializing in only one product—
industrial rectifier equipment for DC power.*

*An outline of your DC problem
will bring you detailed specifications
and recommendations promptly*

W. GREEN ELECTRIC CO., INC.

ESTABLISHED 1892

Builders of SELECTRO-PLATERS and all types of rectifier equipments.

Green Exchange Bldg., 130 Cedar St., New York



**U.S.
EQUIPMENT**
SINCE 1896

For Plating, Metal Cleaning, Pickling, Acid
Dipping, Drying and Allied Operations

FULLY AUTOMATIC SEMI AUTOMATIC
MANUALLY OPERATED

PLATING BARREL APPARATUS
STILL TANK PLATING EQUIPMENT
VARIABLE SPEED PLATING APPARATUS
AUTOMATIC CLEANING & PLATING UNITS
CONTINUOUS ACID TREATMENT EQUIPMENT
MECHANICAL CLEANING APPARATUS
ELECTROLYTIC PROCESSING UNITS
GENERATOR EQUIPMENT
DRYERS, ETC.

**U. S. GALVANIZING & PLATING
EQUIPMENT CORPORATION**

Incorporated 1896

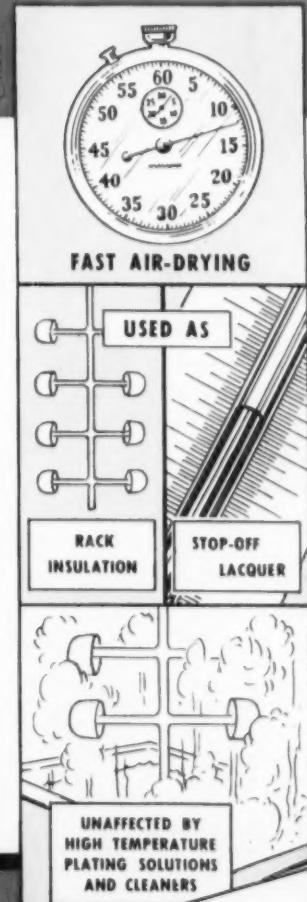
31 Heyward Street, Brooklyn, N.Y., U.S.A.

High Speed

COPPER

DEMANDS
RACKOTE D-2696
WHITE INSULATION

• A success-proven product on production, both as a RACK INSULATION and a STOP-OFF LACQUER. Unaffected by the high temperature alkaline cleaners and plating solutions of high speed copper, alkaline zinc and tin. Simple application in your own plant — no equipment needed. Shipped at correct dipping consistency. Contact your jobber or write direct for further information. Better yet, for a test run in your plant, at no obligation or cost, send us a rack for coating. Prompt return. (If type of plating is other than the above listed please advise.) *Write for Literature Now!*

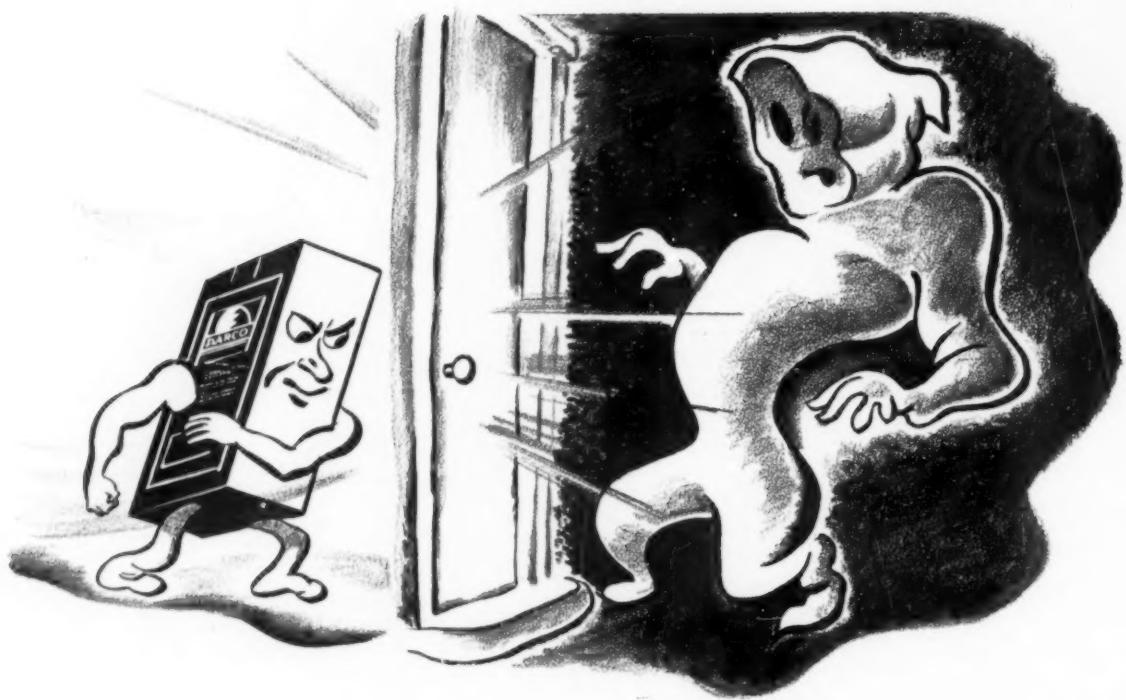


THE RACKOTE DIVISION
WYANDOTTE PAINT PRODUCTS CO., WYANDOTTE, MICHIGAN

Dominion of Canada
CANADIAN HANSON & VAN WINKLE CO., LIMITED
LOS ANGELES CHEMICAL CO.
Los Angeles, Cal.
WM. BUCHANAN SUPPLY CO.
337-39 E. Third St., Cincinnati, O.
SOMMERS BROS. MANUFACTURING CO.
St. Louis, Mo.

Toronto, Canada
M. E. BAKER COMPANY
Cambridge, Mass.
VIC MINER COMPANY
Toledo, Ohio.
A. B. C. CHEMICAL CO.
Waterbury, Conn.
H. A. JOHNSON
941 Revere Ave., New York, N. Y.
THE UNITED STATES PLATERS SUPPLY CO.
Cleveland, Ohio.

THE RACKOTE DIVISION
Proudly Announces the Addition of
BELKE MANUFACTURING COMPANY
CHICAGO, ILLINOIS
To Its List of Distributors



DARCO *Slams the Door* on Plating Solution GHOSTS

DARCO doesn't give "ghosts" a chance—those ghostly impurities that creep in to ruin good plating jobs.

If your electroplating solution always contained only pure electrolyte and distilled water—and your base metals were perfectly clean—ghosts would not appear to cause trouble. But unless DARCO is present, impurities may creep in before you know it.

DARCO S-51 is the activated carbon especially suited for purifying electroplating solutions. DARCO *adsorbs* the grease, oils, soap, colloidal substances and decomposition products that plague production in your plant.

A few cents buys enough DARCO to keep your solution clean for a week.

Be sure you get DARCO in the trademarked carton. Write for a sample. Or get a supply from your dealer.

DARCO—Reg. U. S. Pat. Off.



This trademark identifies the genuine. Accept no packages without it.

DARCO
CORPORATION
60 East 42nd Street, New York, N. Y.

Surbrite

**MAKES BRIGHT,
CLEAN SURFACES
ON PICKLED STEEL**

**This new steel and
iron surface conditioner,**

added in small quantities to acid pickles,
produces bright, smut-free surfaces.
"SURBRITE" reduces acid consumption and
metal loss and creates an ideal surface for
electroplating.

Surbrite
"S"

Surbrite
"H"

In form, "SURBRITE" is a free running powder prepared in two types — "H" for addition to Hydrochloric and "S" for addition to Sulfuric Acid pickles.

Surbrite is economical too!

For its slightly higher initial cost is overbalanced by
the smaller quantity needed to do a more efficient job.

HANSON-VAN WINKLE-MUNNING CO.

MATAWAN, NEW JERSEY

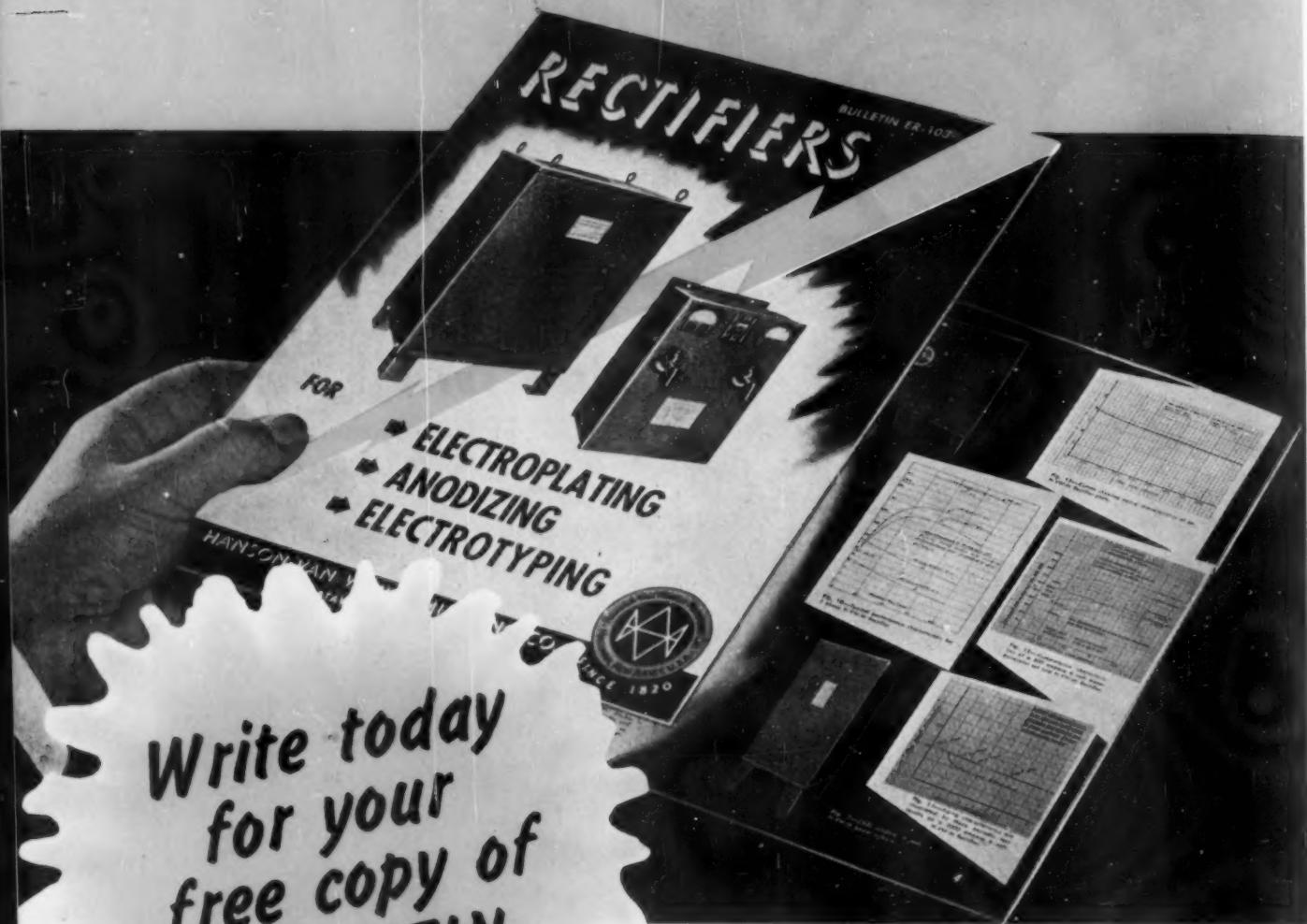
PLANTS: Matawan, New Jersey . . . Anderson, Indiana . . . Bridgeport, Connecticut

SALES OFFICES: Anderson • Bridgeport • Chicago • Cleveland • Dayton • Detroit • Elkhart • Matawan
Milwaukee • New Haven • New York • Philadelphia • Pittsburgh • Springfield (Mass.) • Syracuse

Manufacturers of a complete line of electroplating and polishing equipment and supplies



New facts about Rectifiers



Write today
for your
free copy of
**BULLETIN
ER-103**

This free 10-page bulletin — just off the press — is packed with facts about the newest copper oxide, plate type rectifiers for converting AC to low voltage DC for electroplating, electrotyping and anodizing installations.

The bulletin contains complete ratings and dimensions for H-VW-M Rectifiers with outputs from 300 to 2000 amperes at 6 volts and from 150 to 1000 amperes at 12 volts, as well as graphs of efficiency, power factor, aging characteristics and other details of performance. A special 3-page section, not included in former bulletins, gives detailed answers to all questions commonly asked concerning copper oxide, plate type rectifiers.

Write today for your free copy of Bulletin ER-103



HANSON-VAN WINKLE-MUNNING CO.

MATAWAN, NEW JERSEY

PLANTS . . . Matawan, New Jersey . . . Anderson, Indiana . . . Bridgeport, Connecticut

SALES OFFICES: Anderson • Bridgeport • Chicago • Cleveland • Dayton • Detroit • Elkhart • Matawan

Milwaukee • New Haven • New York • Philadelphia • Pittsburgh • Springfield (Mass.) • Syracuse

© 3316

Manufacturers of a complete line of electroplating and polishing equipment and supplies

Supply Prices, November 30, 1942

Anodes

Prices are f.o.b. shipping point on quantities of from 500-999 lbs. for copper, brass and zinc. For nickel, prices are for quantities from 500-2,999 lbs.	
COPPER: Cast, elliptical, 15" and longer	25½c. per lb.
Electrolytic, full size, 22½c; cut to size	22½c. per lb.
Rolled, oval, straight 15" and longer 23¼c. per lb.; curved	24¼c. per lb.
BRASS: Cast, 80-20, elliptical, 15" and longer	23½c. per lb.
ZINC: Cast, 99.99, 16" and over	16¼c. per lb.
NICKEL: 95-97 cast, elliptical 46c. per lb., 99% plus cast 47c.; rolled, depolarized	49c. per lb.
SILVER: Rolled, .999 fine per Troy (1-9) oz.	.58c. per oz.

Chemicals

These are manufacturers' quantity prices and based on delivery from New York City.

Acetone, C.P., drums, l.c.l.	lb.	.09	Hydrogen Peroxide, 100 volume, carboys	lb.	.16-.185
Acid, Boric tech., 99.5% gran., bbls.	lb.	.0635	Iron Sulphate (Copperas), cryst., bbls., 1-4 wks.	lb.	.02
Chromic, 99%, 100 lb. drums, l.c.l.	lb.	.1825	Lead, Acetate (Sugar of Lead), crystals, bbls.	lb.	.125
Hydrochloric (muriatic) tech., 20°, carboys, wks.	lb.	.027	Oxide (Litharge), com., powdered, bbls.	lb.	.09
Hydrochloric (muriatic) tech., 22°, carboys, wks.	lb.	.19	Magnesium Sulphate (Epsom Salts), tech., bbls.	lb.	.019
Hydrofluoric, 30% bbls.	lb.	.06-.065	Mercury Bichloride (Corrosive Sublimate), crys.	lb.	\$2.39
Nitric, 36°, carboys 1-9, wks.	lb.	.0595	Mercuric Oxide, tech., red, powder, bbls.	lb.	\$3.26
Nitric, 42°, carboys 1-9, wks.	lb.	.0745	Nickel, Carbonate, dry, bbls.	lb.	.36-.365
Oleic (Red Oil), distilled, drums	lb.	.1175-.1275	Chloride, bbls.	lb.	.18-.20
Oxalic, bbls. l.c.l.	lb.	.125	Salts, single, 425 lb. bbls.	lb.	.135-.145
Stearic, distilled, double pressed, bags	lb.	.14-.15	Salts, double, 425 lb. bbls.	lb.	.135-.145
single pressed, bags	lb.	.135-.145	Paraffin, refined, bgs., 123-125 a.m.p., c.l.	lb.	.0520
triple pressed, bags	lb.	.17-.18	Perchlorethylene, drums, l.c.l.	lb.	.085
Sulphuric, 66°, carboys 1-9, wks.	lb.	.0245	Phosphorus, red, cases	lb.	.40-.44
Alcohol, Amyl (Fusel oil, ref'd), l.c.l., drums	lb.	.151	yellow, cases	lb.	.23-.25
Butyl-normal, l.c.l., drums	lb.	.14-.1575	Potash, Caustic, 88-92%, flake, drums, works, c.l.	lb.	.07
Denat., S.D. #1, 190 pf., 1-18 drms., wks.	gal.	.615	Potassium, Bichromate, crystals, casks	lb.	.10
Diacetone, tech., drums, l.c.l.	lb.	.115-.14	Carbonate (potash) calc., wks., drums	lb.	.0675
Methyl, (Methanol), 95%, drums, l.c.l.	gal.	.37	Cyanide, 94-96%, dom. dims., wks.	lb.	.55
Propyl-Iso, 99%, drums, l.c.l.	gal.	.47	Pumice, ground, 1½ F. & coarser, bbls., wks.	lb.	.045
Propyl-Normal, drums, wks.	gal.	.67-.70	Quicksilver (Mercury), dom. 76 lb. flasks, net	flask	\$191.
Alum, ammonia, granular, bbls., works	lb.	.04	Rochelle Salts, crystals, bbls.	lb.	.44
Potash, granular, bbls., works	lb.	.0425	Rosin, gum, D bbls., dock	lb.	.0395
Ammonia, aqua, 26°, carboys	lb.	.0525	Silver, Chloride, dry, 50 oz. lots	oz.	.455
Ammonium, chloride (sal-ammoniac), white, granular, bbls., wks.	lb.	.0515	Cyanide, 100 oz. lots	oz.	.41½
Sulphocyanide (thiocyanate), pure, crystal, dims.	lb.	.45-.55	Nitrate, 100 oz. lots	oz.	.32½
Sulphocyanide (thiocyanate), tech., kegs	lb.	.40	Sodium, Carb. (soda ash), light, 58%, bags	lb.	.0213
Antimony Chloride (butter of antimony), sol., carboys	lb.	.17	Cyanide, 96%, dom. 100 lb. drums	lb.	.15
Barium Carbonate, ptd., bags, l.c.l., works	lb.	.03	Hydroxide (caustic soda) 76%, flake, l.c.l.	lb.	.0490
Benzene (Benzol), 90%, drums, works	gal.	.20	Hyposulphite, crystals, bags, wks.	lb.	.0250
Butyl Lactate, drums	lb.	.265	Metasilicate, granular, 1-9 bbls.	lb.	.0355
Cadmium Oxide, l.c.l., bbls.	lb.	.95	Nitrate, rfd., gran., bbls., wks.	lb.	.040
Calcium Carbonate (Pptd. chalk), c.l., wks.	ton	\$40.00	Phosphate, tribasic, tech., bbls., wks.	lb.	.036
Carbon Bisulphide, l.c.l., 55 gal. drums	lb.	.0575	Pyrophosphate, anhydrous, bags, c.l., wks.	lb.	.0528-.0610
Carbon Tetrachloride, l.c.l., drums	gal.	.80	Sesquisilicate, 1-9 drums	lb.	.0430
Chromic Sulphate, scale, 100 lb. drums	lb.	.45	Stannate, drums	lb.	.365
Cobalt Sulphate, drums	lb.	.71	Sulphate, anhydrous, bbls., works	lb.	.0240
Copper, Acetate (verdigris), bbls.	lb.	.26	Sulphocyanide, drums	lb.	.55-.65
Carbonate, 52-54%, bbls.	lb.	.165	Sulphur, Flowers, U.S.P., bbls., l.c.l. mine	lb.	.0415
Cyanide, Tech., 100 lb. bbls.	lb.	.34-.38	Tin Chloride, crystals, kgs	lb.	.39-.395
Sulphate, 99%, crystals, bbls., 1-5	lb.	.0565-.06	Toluene (Toluol), 2°, ind., drums	gal.	.33
Cream of Tartar (potassium bitartrate), gran., kegs	lb.	.585	Trichlorethylene, drums, l.c.l., zone 1	lb.	.085
Crocus Martis (iron oxide) red, bbls.	lb.	.09	Tripoli, air floated, bgs., c.l., wks.	ton	\$21.50
Dextrin, white, bags, F.O.B. Chicago	lb.	.0415	Wax, Bees, yellow, crude	lb.	.4475
Dibutyl Phthalate, drums, l.c.l.	lb.	.215	Carnauba, refined, bags	lb.	.8325
Diethylene Glycol, drums, l.c.l., works	lb.	.155	Montan, bags	lb.	.45-.46
Emery (Turkish)	lb.	.08	Spermaceti, blocks	lb.	.26-.27
Ethyl Acetate, 85%, l.c.l., drums, works	lb.	.125-.135	Whiting, chalk, l.c.l.	ton	\$20-\$24
Ethylene Glycol, l.c.l., drums, works	lb.	.165-.195	Xylene (Xylol), ind., returnable drums, works	gal.	.32
Monoethyl ether, dms., l.c.l., wks.	lb.	.155-.165	Zinc, carbonate, tech., bbls.	lb.	.20
Gold, Chloride, yellow, bottles	oz.	\$19.25	Cyanide, 100 lb. kegs	lb.	.37
Cyanide, potassium 41%, bottles, wks.	oz.	\$14.20-\$14.95	Chloride, tech., granular, drums, c.l., wks.	lb.	.0575
Gum Arabic, white, powder, bbls.	lb.	.33-.35	Sulphate, crystals, bbls., l.c.l.	lb.	.046

BUSINESS WANTS For Sale—Equipment, Etc.

Display Advertisements, One Column Wide, \$6 per inch, Each Insertion



Available for prompt shipment in ratings from 100 to 2000 amp. 18, 20, 30 volts, or special specifications when required.

PLATING GENERATORS

50 amp. 6 volt Leland with 1 phase 60 cycle M. D.	300/150 amp. 7½/15 volt Chandeyson with AC M. D.
60 amp. 7½ volt Eager with 3 phase 60 cycle M. D.	350/175 amp. 7½/15 volt Roth with AC M. D.
150 amp. 7½ volt Roth with 1 phase 60 cycle M. D.	400/200 amp. 6/12 volt Hanson Van Winkle.
150 amperes, 6 volt Connecticut	400/200 amp. 6/12 volt Connecticut
200 amp. 7½ volt Hobart with 3 phase 60 cycle M. D.	600/300 amp. 7½/15 volt Chandeyson
300 amp. 3 volt Elec. Prod. with 3 phase 60 cycle M. D.	1500/750 6/12 Zucker-Leavitt & Loeb

THE MOTOR REPAIR & MFG. CO.

1555 HAMILTON AVE.

CLEVELAND, OHIO



CAnal
6-3956-7

FOR SALE

3—Motor Driven Polishing Lathes. 5 H.P. A.C. Motor Driven 2400 R.P.M., Motor in base.

BEAM-KNODEL COMPANY

195 Lafayette St., N. Y. City

WANTED

I AM looking for a late type Anodizing Generator—Belt or Motor Driven, Rated: 1500 AMPS or 2000 AMPS, 24 Volts. In answering, give full particulars, name plate reading and price.

Address Anodizing Generator, care of Metal Finishing, 11 West 42nd Street, New York, N. Y.

"If it's metal finishing equipment—we have it."

PLATING EQUIPMENT & SUPPLY CO.

Plating Dynamos
Motor Generator Sets
Plating Barrels—Tumbling Barrels
Plating Tanks Ammeters Filters
Polishing Lathes Wheels and Buffs Ovens
Anodes Rheostats Spray Booths
Spraying Systems Voltmeters Blower Systems

1—3000/1500 amperes, 6/12 volts, HVW motor generator set, full panel board, perfect condition and 1—Acme Ball bearing aerial swing frame grinder.

If you want to BUY call us—if you want to SELL call us.
176 Grand Street NEW YORK, N. Y.

REBUILT AND GUARANTEED POLISHING AND PLATING EQUIPMENT

Plating Dynamos and Motor Generator Sets

All Sizes Carried in Stock
Tumbling and Plating Barrels and most anything for the Plating Shop.
Largest Stock of Rebuilt Polishing and Plating Equipment in America



Let us have your requirements. Entire plants or parts thereof bought for cash. Send us list with prices.

J. HOLLAND & SONS, INC.

274 South 9th Street, at Broadway, Brooklyn, N. Y.
EVergreen 7-3314—3315—3316

BURNISHING BALLS

Large Quantity on Hand but Going Fast

USED BUFFS

All Sizes

MANUFACTURER'S SALVAGE CO.

507 Eddy Street

Providence, R. I.

Wanted—Equipment and Supplies.

Display Advertisements, One Column Wide, \$6 per inch, Each Insertion

METAL FINISHING HAS MOVED TO

11 WEST 42ND STREET

NEW YORK CITY

BUSINESS WANTS

For Sale—Equipment, Etc.

Display Advertisements, One Column Wide, \$6 per inch, Each Insertion

FOR SALE (AVAILABLE FOR IMMEDIATE SHIPMENT)

- 4-5000/2500 AMPERE, 6/12 VOLT, HANSON & VAN WINKLE CO. "OPTIMUS" Motor Generator Sets. Full Panel-Board Arrangement. Excellent Condition.
- 1-3000 AMPERE, 6 VOLT, CHANDEYSSON ELECTRIC CO. Motor Generator Set, consisting of 2-1500 AMPERE, 6 VOLT, Generators, driven by Single Motor. Complete Controlling Equipment. Used less than 3 years.
- 1-2500/1250 AMPERE, 6/12 VOLT, EAGER ELECTRIC CO. Ball-bearing Motor Generator Set. Full Panel-Board Arrangement. Excellent Condition.
- 1-2500/1250 AMPERE, 6/12 VOLT, GENERAL ELECTRIC CO. Motor Generator Set. Full Panel-Board Arrangement. Excellent Condition.
- 1-2000 AMPERE, 6 VOLT, JANTZ & LEIST Motor Generator Set. Full Panel-Board Arrangement. Excellent Condition.
- 1-1500/750 AMPERE, 6/12 VOLT, HANSON & VAN WINKLE CO. Motor Generator Set. INTERPOLE DESIGN. Separately Excited. Full Panel-Board Arrangement. Excellent Condition.
- 1-1000/500 AMPERE, 6/12 VOLT, CONNECTICUT DYNAMO & MOTOR CO. Motor Generator Set. Full Panel-Board Arrangement. Excellent Condition.
- 1-1000/500 AMPERE, 6/12 VOLT, HANSON & VAN WINKLE CO. Motor Generator Set. INTERPOLE DESIGN. Full Panel-Board Arrangement. Excellent Condition.
- 1-750/375 AMPERE, 6/12 VOLT, BENNETT & O'CONNELL ELECTRIC CO. Motor Generator Set. Full Panel-Board Arrangement. Excellent Condition.
- 1-750 AMPERE, 6 VOLT, HANSON & VAN WINKLE CO. BELT-DRIVEN GENERATOR. Complete with Panel-Board.
- 1-800 AMPERE, 60 VOLT, CROCKER-WHEELER ELECTRIC CO. "ANODIZING" MOTOR GENERATOR SET. Full Panel-Board Arrangement. INTERPOLE DESIGN. Excellent Condition.
- 1-400 AMPERE, 30 VOLT, WESTERN ELECTRIC CO. "ANODIZING" MOTOR GENERATOR SET. Excellent Condition. Full Panel-Board Arrangement.
- 1-BAIRD MACHINE COMPANY, DOUBLE NO. 2 SIZE, BELT-DRIVEN BALL BURNISHING BARREL UNIT. Excellent Condition.
- 1-LA SALCO, INC. SINGLE NO. 1 SIZE, BALL-BEARING, MOTOR-DRIVEN, BALL BURNISHING BARREL. New.
- 1-LA SALCO, INC. SINGLE NO. 2 SIZE, BALL-BEARING, MOTOR-DRIVEN, BALL BURNISHING BARREL. New.

MANY OTHER SIZES IN STOCK

BAIRD & ABBOTT—Burnishing and Tumbling Barrels, Polishing Lathes, Rheostats, Ammeters, Blowers, Tanks, Polishing Wheels and many other items for the Plating and Polishing Department.

WRITE FOR DETAILS

M. E. BAKER COMPANY

143 Sidney St.

Cambridge, Mass.

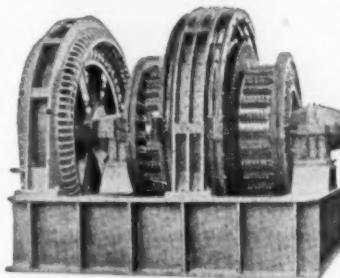
CONTRACT FINISHING

ANODIZING

- ★ Complete Plating Services. All metals.
- ★ Unlimited Production Capacity for Wartime Jobs.
- ★ Storage and Direct Shipping Facilities.
- ★ Complete Laboratory and Engineering Service.
- ★ Government and S.A.E. Specifications Guaranteed.

UNITED PLATERS, INC., 987 Madison, Detroit, Michigan
Telephone: Randolph 4050 for rush quotation

REBUILT AND GUARANTEED Polishing and Plating Equipment



Largest and most complete stock of plating generator sets in America, too numerous to list, 100 amperes to 7500 amperes, 6/12 volts. Rheostats, Tumbling, Burnishing and Mechanical Plating Barrels.

Polishing & Buffing Lathes—Belt Drive, Motor Drive and Multi "V" Belt Drive.

Blowers, all sizes, belt and motor driven.

We carry a complete line of plating and polishing equipment and supplies.

Whatever your requirements may be in the plating and polishing line—call us for prices before placing your order.

WRITE — PHONE — WIRE

CLINTON SUPPLY CO.

112 So. Clinton Street Chicago, Illinois
Phone, Franklin 3538-3539

METAL FINISHING HAS MOVED

to 11 West 42nd St.

New York

SITUATIONS OPEN

RUSTDOOM

Wipe or spray Rustdoom on rusty surface. It stays put. Watch rust dissolve and disappear right before your eyes. Leaves surfaces bright and clean. No work, small cost. Territories available only to men with proper contacts.

ONYX OILS & RESINS, INC.
95 Broad Street, New York, N. Y.

FOR RESULTS ADVERTISE IN METAL FINISHING

PLATER

SITUATION OPEN—To operate plating and polishing equipment in a research laboratory near New York. Unusual opportunity for a man with unusual intelligence and experience. Include small, recent photograph.

Address Box Dec. 1, care Metal Finishing
11 West 42nd Street, New York, N. Y.

WANTED

Reputable plater, thoroughly experienced in anodizing and alumilizing processes and applications in large plant. Give references and state qualifications. Write Benson Manufacturing Company, 18th & Agnes Avenue, Kansas City, Missouri.

BUSINESS WANTS

SITUATIONS OPEN

RESEARCH ELECTROPLATER

SITUATION OPEN—Graduate Chemist or Metallurgist to work on Electro Plating Development. Large Manufacturing Company, located in the Middle West with both War Contracts and Non-Defense work. Excellent opportunity to do research work.

Address Box No. 501, care Metal Finishing
11 West 42nd Street, New York, N. Y.

Machinery Salesmen—

IS YOUR PRODUCT FROZEN?

IF so, and you are beyond draft age, old established national concern will train you to sell and service chemical products to war industries. If interested send details, experience, age, salary expected to

Box 894, care Metal Finishing
11 West 42nd Street, New York, N. Y.

SITUATIONS WANTED

ELECTRO-CHEMICAL-ENGINEER—

FINISHING SUPERVISOR

Desires position assuming charge of Electroplating Department. Specialist in Hard Chromium deposition up to .100 thickness. 10 years experience. A1 references. 3A classification. Expert in all Plating baths and procedures.

Address H. C., care Metal Finishing.

ELECTROPLATING CHEMIST

SITUATION WANTED—At present employed in the plating department of a non-defense plant as foreman and chemist but will be available soon for other employment due to defense priorities on plating materials. Experienced in the practical and theoretical aspects of known plating solutions and plating of metals on production basis in barrel, still tank, semi-automatic and full automatic units.

Experienced in aluminum anodizing on production basis as practiced in defense plants, also burnishing, oxidizing, lacquering. Wishes responsible contact.

Address Anodic, care Metal Finishing.

FOREMAN PLATER

SITUATION WANTED—Foreman Plater—for 100% War Plant located in the Middle West—who has had experience in Hard Chrome Plating, especially in building up tools and gages. Good wages and chance for advancement. In your reply, state in detail age, experience and salary desired.

Address Box 345, care Metal Finishing
11 West 42nd Street, New York, N. Y.

POLISHER AND PLATER

SITUATION WANTED—First rate polisher, grinder and buffer, experienced plater on all metals and solutions would like to apply for steady employment in a job shop or in a manufacturing plant. Will go anywhere. References furnished.

Address Box 1, care Metal Finishing.

PLATING ENGINEER & CHEMIST

SITUATION WANTED—As plating engineer and chemist in a metal working or contract plating shop. Fourteen years experience. I have no objection to accepting a position in any part of the country.

Address L. A., care of METAL FINISHING.

FOREMAN POLISHER

SITUATION WANTED—Industrious metal polisher foreman with wide experience in lighting fixtures, floor lamps, hardware and plumbing supplies; also several years' experience in jobbing shops on all metals. Has taken charge for over 10 years as foreman and production superintendent for a large concern. Will travel anywhere. Seeking a permanent position. Age 41, 23 years experience.

Address Foreman Polisher, care of Metal Finishing.

FOREMAN PLATER

SITUATION WANTED—Foreman Plater who has had 25 years experience in Plating, Buffing, Polishing and Lacquering, including Barrel Plating and Ball Burnishing. Desirous to locate in New York City or its vicinity. Address J. C., care Metal Finishing.

SITUATION WANTED

Foreman Plater—Expert on all solutions. Specialized in Bright Nickel, Chromium, Bright Zinc. Is desirous of making good connection where production is desired.

Address Bright Zinc, care of Metal Finishing.

ELECTROCHEMIST

SITUATION WANTED—Chemical Engineer, Columbia; fourteen years extensive industrial experience: general consulting work, electrodeposition practically all metals, bright metal plating, gold alloys, metal finishing and allied fields; installation, development, research. Several outstanding developments. Available part time, temporary and consulting. Full time position considered.

Address L. G., care of Metal Finishing.

« « INDEX TO ADVERTISERS » »

A

Abbott Ball Co., Hartford, Conn.	664
Aeme Mfg. Co., Detroit, Mich.	11
Advance Polishing Wheel Co., Inc., Chicago, Ill.	20
Agate Lacquer Mfg. Co., Long Island City, N. Y.	694
Alsop Engineering Corp., Milldale, Conn.	18
American Nickeloid Co., Peru, Ill.	672
Avery Adhesive, Los Angeles, Cal.	685

B

Baird Machine Co., The, Bridgeport, Conn.	10
Baker, M. E. Co., The, Cambridge, Mass.	33
Barber-Colman Co., Rockford, Ill.	673
Beam Knodel, Inc., New York	32
Belke Mfg. Co., Chicago, Ill.	16, 670, 692
Bristol Brass Corp., The, Bristol, Conn.	676
Bullard Dunn Co., Bridgeport, Conn.	36

C

Chromium Process Co., Shelton, Conn.	35
Clinton Supply Co., Chicago, Ill.	33
Cowles Detergent Co., Cleveland, Ohio	666
Crown Rheostat & Supply Co., Chicago, Ill.	669

D

Darco Corporation, New York, N. Y.	28
Detroit Rex Products Co., Detroit, Mich.	Back Cover
Dulite Chem. Corp., Middletown, Conn.	8
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.	15

E

Egyptian Lacquer Mfg. Co., New York, N. Y.	688
Enthone Co., New Haven, Conn.	5, 665, 686

F

Ford Sales Co., J. B., Wyandotte, Mich.	664
---	-----

G

General Ceramics Co., Keasbey, N. J.	6
Green Electric Co., W., New York, N. Y.	23
Gumm Chemical Co., Inc., Frederick, Kearney, N. J.	Inside Front Cover

H

Hamilton Emery & Corundum Co., Chester, Mass.	676
Hanson-Van Winkle-Munning Co., Matawan, N. J.	29, 30
Harrison & Co., Haverhill, Mass.	668
Harshaw Chemical Co., The, Cleveland, Ohio	667
Hartford Steel Ball, Hartford, Conn.	35
Hay Co., Jacob, Chicago, Ill.	35
Heil Eng. Co., Cleveland, O.	671
Hogaboom, G. B. Jr., & Co., Newark, N. J.	685
Holland & Sons, Inc., Brooklyn, N. Y.	32

I

Industrial Filter & Pump Mfg. Co., Chicago, Ill.	693
Industrial Sheet Metal Works, Detroit, Mich.	689
International Rust Proof Corp., Cleveland, Ohio	686, 689, 692, 693

K

Kalamazoo Tank & Silo Co., Kalamazoo, Mich.	671
Keystone Emery Mills, Phila., Pa.	672
Keystone Carbon Co., St. Marys, Pa.	20
Kirk & Blum Mfg. Co., Cincinnati, Ohio	21
Kocour Co., Chicago, Ill.	667
Kushner, Joseph, New York	661

L

Lasalec, Inc., St. Louis, Mo.	26
Lea Mfg. Co., The, Waterbury, Conn.	Front Cover
L'Hommedieu & Sons Co., Chas. F., Chicago, Ill.	7
Lupomatic Tumbling Machine Co., New York, N. Y.	676

M

MacDermid Incorporated, Waterbury, Conn.	Inside Back Cover
Magnuson Products Corp., Brooklyn, N. Y.	672
Mahon Co., R. C., Detroit—Chicago	695
Manufacturers Salvage Co., Providence, R. I.	32
Matchless Metal Polish Co., Chicago, Ill., and Glen Ridge, N. J.	21
McAleer Mfg. Co., Detroit, Mich.	663
Mearl Corp., New York, N. Y.	695
Michigan Chrome & Chemical Co., Detroit, Mich.	662
Mine Safety Appliances Co., Pittsburgh, Pa.	16
Mitchell-Bradford Chem. Co., Bridgeport, Conn.	669
Motor Repair Co., Cleveland, O.	32
Munning & Munning, Inc., Newark, N. J.	676
Mutual Chemical Co. of America, New York, N. Y.	608

N

National Sherardizing & Mach. Co., Hartford, Conn.	35
--	----

O

Oakite Products, Inc., New York, N. Y.	4
--	---

P

Packer Machine Co., Meriden, Conn.	673
Pennsylvania Salt Mfg. Co., Phila., Pa.	9
Platers Technical Service Co., New York	661
Plating Equipment & Supply Co., New York	32
Platt Bros. & Co., The, Waterbury, Conn.	35
Precimet Laboratories, New York	14
Procter & Gamble, Cincinnati, Ohio	692
Puritan Mfg. Co., Waterbury, Conn.	35

R

Ransohoff, N., Inc., Cincinnati, Ohio	666
---------------------------------------	-----

S

Sarco Co., Inc., New York	670
Sparkler Mfg. Co., Mundelein, Ill.	694
Spectranomic Electropolating Co., New York	14
Standard Plating Rack Co., Chicago, Ill.	676
Stevens, Inc., Frederic B., Detroit, Mich.	13
Sulphur Products Co., Greensburg, Pa.	665

T

Taber Instrument Corp., North Tonawanda, N. Y.	694
Turco Products, Inc., Los Angeles, Cal.	22

U

The Udylite Corp., Detroit, Mich.	17
United Chromium, Inc., New York	19
United Platters, Inc., Detroit, Mich.	33
U. S. Galvanizing & Pltg. Equipment Corp., Brooklyn, N. Y.	24

V

Vulcan Detinning Co., The, Sewaren, N. J.	676
---	-----

W

Waterbury Rolling Mills, Inc., Waterbury, Conn.	672
Whittaker, Clark & Daniels, Inc., New York, N. Y.	3
Wyandotte Paint Products Co., Wyandotte, Mich.	27

Z

Zapon Co., Division, Atlas Powder Co., New York and Stamford, Conn., & Chicago, Ill.	678
Zialite Corp., Worcester, Mass.	676

PLATERS and POLISHERS DATA BOOK



Chemical Engineering Data, Useful Tables, Instructions.

How to clean Easier, Quicker, Less operations, No peeled plate, no rejects.

Send for FREE copy today

Puritan Mfg. Co., Waterbury, Conn.
Originators and Manufacturers of
WONDERBAR, Pre-Saponified BUFFING, POLISHING COMPOUND

Hartford STEEL BALLS

Burnishing and polishing balls and mixtures. Absolutely guaranteed not to wear out through burnishing use.

THE HARTFORD STEEL BALL CO.
HARTFORD CONNECTICUT

BUFFS, CLEANERS

BUFFING COMPOSITIONS—NICKEL ANODES CHEMICALS AND GENERAL SUPPLIES

JACOB HAY COMPANY
4014 W. Parker Avenue
Chicago, Ill.
Albany 2742

CHROMIUM PLATING SCREWS-RIVETS-WASHERS SMALL PARTS, ETC.

THE CHROMIUM PROCESS CO.
Shelton, Conn.

RIBBON ZINC
For stamping and drawing
FUSE METAL

For fuse elements
ZINC WIRE

THE PLATT BROS. & CO., Waterbury, Conn.

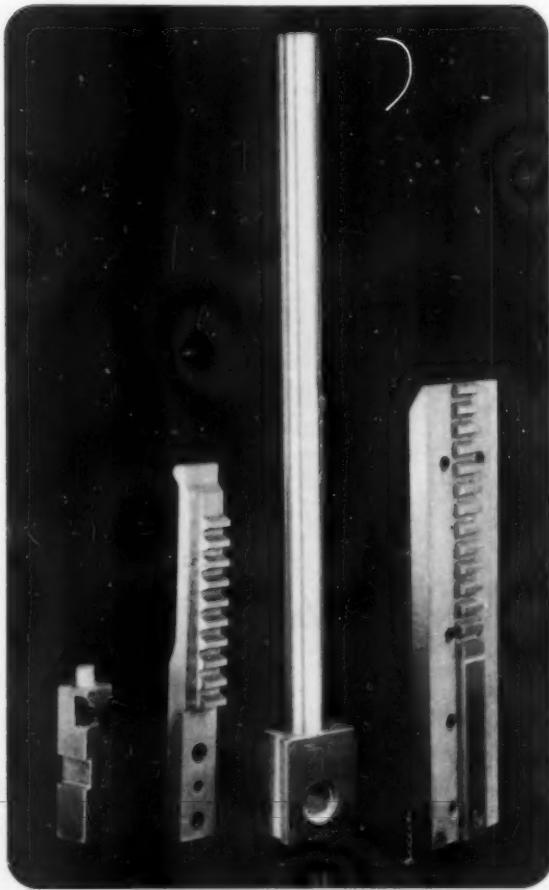
Truly—Three Great Finishes!! CHROMIUM — UDYLITE — SHERARDIZING

For over a quarter of a century building and installing portable sherardizing furnaces and equipment; metal finishing and plating. We invite your inquiry.

THE NATIONAL SHERARDIZING & MACHINE CO.
Office & Factory
Foreign Representatives—Oliver Bros., Inc.,
417 Canal St., N. Y. City



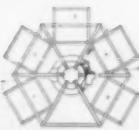
CLEAN as a Whistle!



These parts were covered with oil, carbon and scale from heat treatment. The Bullard-Dunn Process has made them so chemically clean that they are in perfect condition for plating, Parco-Lubrizing, grinding or final assembly. In addition to making parts "Clean as a Whistle", Bullard-Dunn speeds up descaling operations, reduces labor required, and does many other things to make it a "stand-out" for war production.

And all this without any etching or dimensional changes!

Write for bulletin today.



BULLARD-DUNN *Process*

DIVISION OF THE BULLARD COMPANY
BRIDGEPORT, CONNECTICUT, U.S.A.

ODDS AND ENDS

It has been announced that the Chicago plant of the Chromium Corporation of America was awarded the Army-Navy "E" pennant. We believe this is the first instance of a job plating shop receiving this award.

+

Cadmium Disease

Recent medical research has resulted in the identification of a disease which is directly traceable to cadmium and is prevalent in the vicinity of cadmium plating installations. The disease is not a new one and has reoccurred in epidemic form at irregular intervals during the last decade, but it has lately manifested itself by a particularly savage onslaught.

Although the disease is contagious, it has been confirmed that constant exposure tends to build up an immunity so that plater's helpers who work over the cadmium tanks all day are very rarely afflicted. Most cases on record are those of foreman platers who are not in contact with the solutions to the extent required to acquire immunity but are near enough to the source to become infected. Often other shop officials such as production managers and purchasing agents are infected through the foreman and will then exhibit the same symptoms. The disease is evidenced in the early stages of its incubation by an inability to sleep, by nervousness and by an irresistible attraction for objects on which numbers are displayed, such as calendars, for example. Cases are on record in which the afflicted person not only was irresistibly attracted to calendars, but like a man awaiting execution in a death cell, has crossed out the passing days.

In its later stages the poor individual experiences an unquenchable thirst which starts with him continually licking his lips while watching the calendar and ends with him running around with his tongue hanging out. At this point he is approaching the final stage of dementia precox and can often be heard mumbling foolish phrases such as "Not Enough Anodes" which he repeats over and over.

Scientific studies indicate that this disease is caused by a deficiency of cadmium in the production blood stream and can be cured, if it has not reached the final stage, by massive doses of the rare and almost unobtainable cadmium. Fortunately a simple remedy is at hand, one that is comparable in its curative powers to the sulfa drugs.

Some persons, just as in the case of the sulfa compounds, are allergic to the remedy and even the mention of the word is enough to bring on anguished cries of pain. However, it is thought that in many such cases the so-called allergy is just an aesthetic distaste rather than a physical inability to assimilate the material.

This remarkably effective remedy for the cadmium disease is not a new one and really should be resorted to more often. It is commonly called Zinc.

+

Unanswered Question: If 0.0002" of cadmium is considered sufficient to protect a steel part which has an external thread on some portion of it, why should 150% more cadmium be specified on a similar part which has no thread???

+

War Bond Slogan of the Month: "Praise the Lord and Buy the Ammunition."

+

The *New York Times* Magazine Section of November 15th mentioned that three freight cars were used to transport the latest edition of the Washington, D. C. phone books from the printers in Jersey City. The first part of this edition was printed from nickel-faced stereotypes and the remainder from iron-faced stereotypes which gave equivalent service. The coming edition of the New York telephone directory which is much larger than the Washington directory, will be printed completely from iron-faced stereotypes. The iron is plated from a ferrous ammonium sulfate solution.

SPEED plus PRECISION WILL WIN! THE WAR!

★ As the P.T. boats specialize overseas, we specialize at home! Aiming our concentrated attack at the primary, vital points of contention with speed and precision—saving valuable metal and man power by eliminating possible waste, before it happens, through fast-positive formulae and processes for cleaning basis metals, especially prepared for speedy operations.



DOUBLE Your FIRE ACTION . . . WITH THESE FASTER - POSITIVE COMPOUNDS FOR CLEANING

Let us show you, in your own plant, how to speed up and improve your finished or plated products with these special cleaners that have been developed for this emergency in MacDermid Laboratories, proven to be doubly effective in cleaning action—twice as fast as usual methods and twice as positive—especially when used with the now famous ANODEX reverse current process, originated by MacDermid and approved by leading authorities.

Write for Free Data Sheets or Free Technical Service

★ ANODEX FOR FERROUS METALS

★ METEX FOR ALUMINUM and ALLOYS

SPECIAL CLEANERS FOR SPECIAL PROBLEMS



AMPLE SUPPLIES—ADEQUATE RESERVES

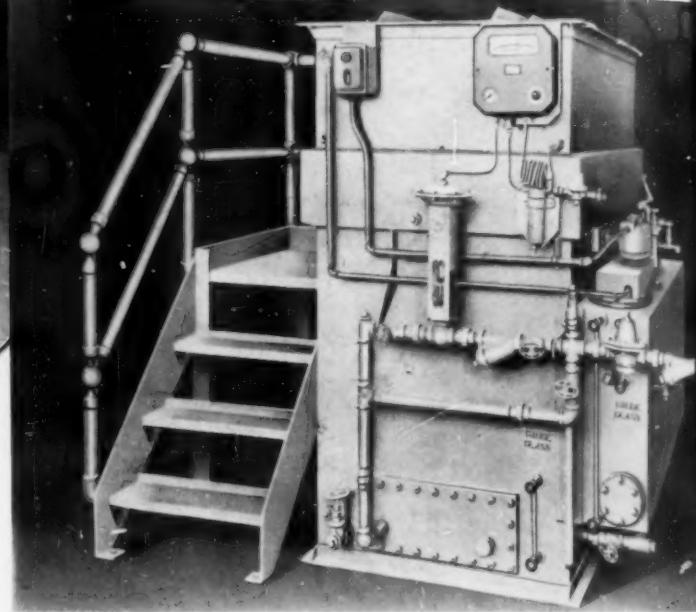
SALES AND SERVICE
from
COAST TO COAST
New York Cleveland Los Angeles
Chicago Detroit St. Louis
Newark Philadelphia
Toronto, Canada

MAC DER MID
INCORPORATED
WATERBURY, CONNECTICUT

Even Today CONSTANT IMPROVEMENT

TRIAD[®]

DEGREASING SOLVENTS and CLEANERS



- Since Triad chemicals were first introduced, they have been constantly improved. Today, in spite of production demands . . . and the fact that Triad solvents and Triad alkali cleaning compounds are unsurpassed for their specific purposes . . . laboratory work and chemical research continues.

Future changes in various grades of Triad may be minor, or they may be radical. However, you may be sure that any possible improvements which can be useful to your War Production metal cleaning operations will be made.

- Vapor-slush Detrex Degreaser arranged for solvent heating and is equipped with vapor level control and operating platform.



- Three-stage spray washer with mesh belt conveyor. Incorporates hot alkali sprays, hot water rinse and hot air blast blow-off.

SOLVENT DEGREASING and ALKALI CLEANING



DETROIT REX[®] PRODUCTS COMPANY

13009 HILLVIEW AVENUE • DETROIT, MICHIGAN

Branch Offices In Principal Cities of U. S. A.—In Canada: Canadian Hanson & Van Winkle Co., Ltd., Toronto, Ontario

M
EN
R
or st
control
onvo
use a
IG
TS
Y
ario